

FLORIDA HIGHWAYS



Vol. V

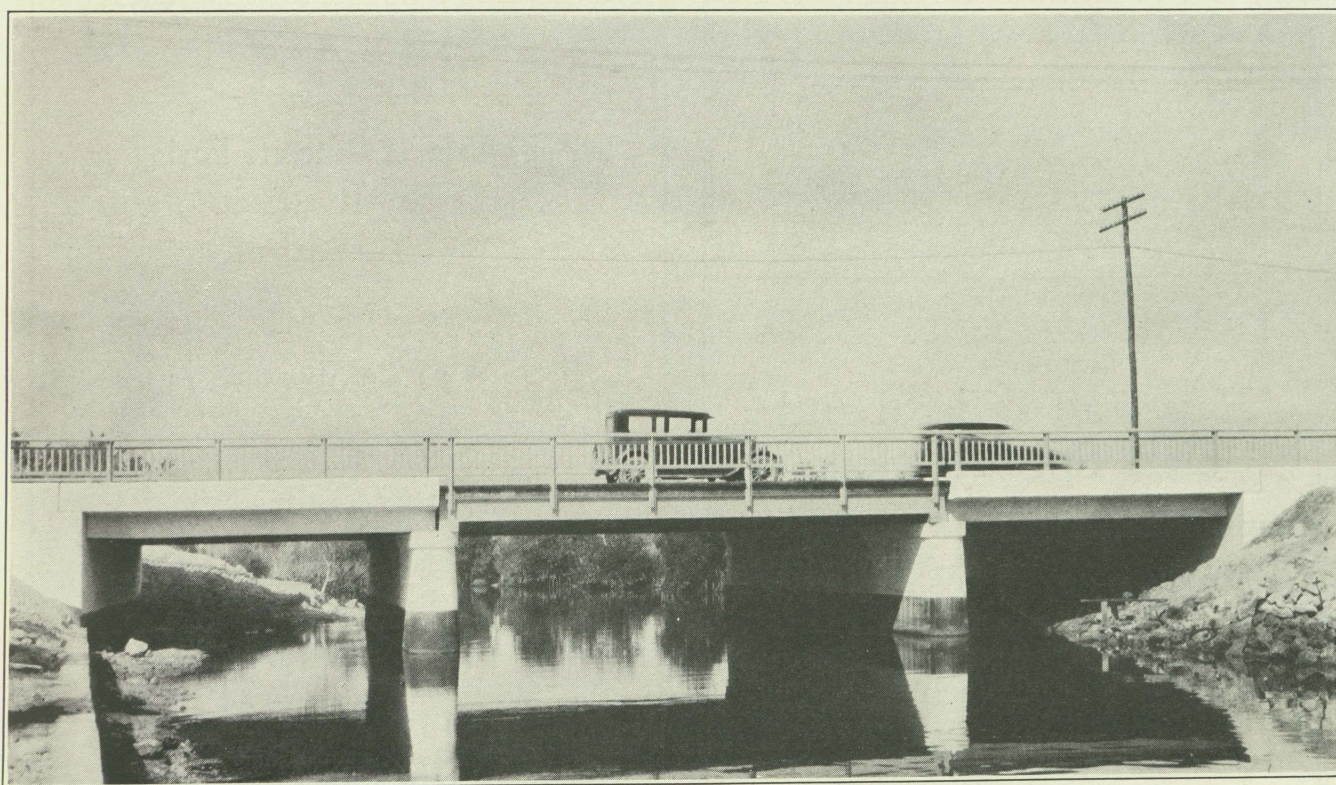
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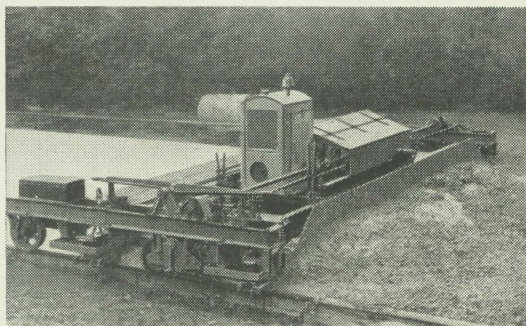
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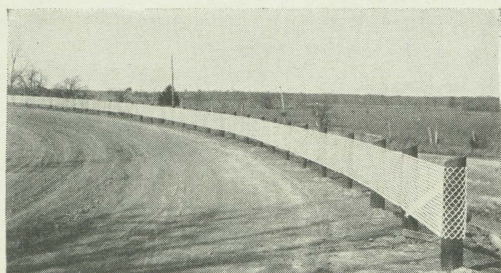
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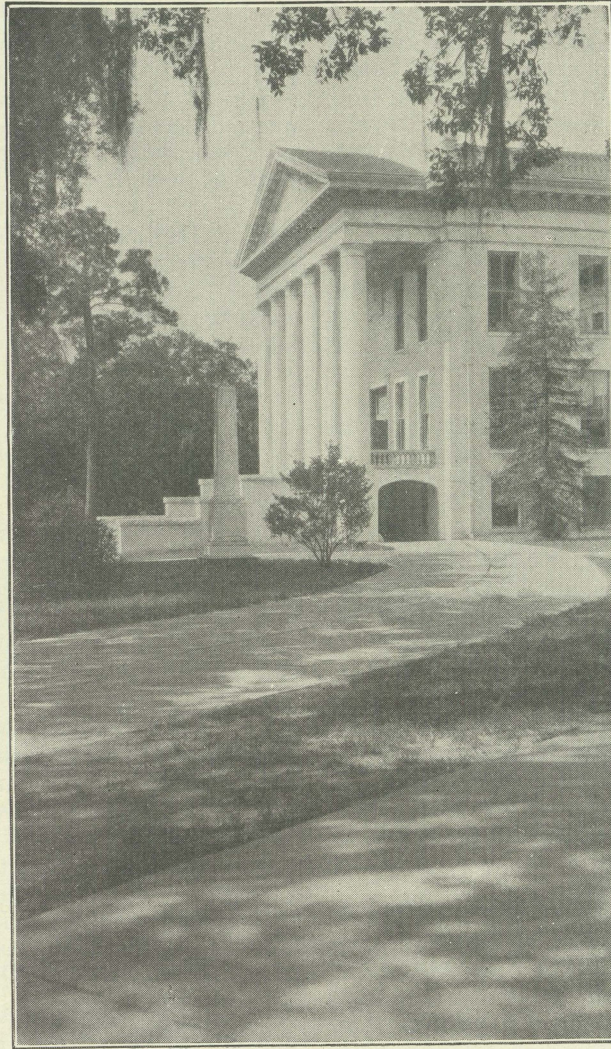
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FLORIDA

Vol. V
No. 4



HIGHWAYS

APRIL,
1928

Transactions at a Special Meeting of State Road Department Held in Orlando, Florida, March 15th, 1928.

PURSUANT to call and due advertisement, a special meeting of the State Road Department was held in Orlando, Florida, March 15, 1928, with all members present, to-wit:

F. A. Hathaway, chairman; E. P. Green, W. J. Hillman, J. Harvey Bayliss and I. E. Schilling. J. L. Cresap, State Highway Engineer; L. K. Cannon, Assistant State Highway Engineer; H. J. Morrison, Federal Highway Engineer, and B. A. Meginniss, Attorney for the Department, were also in attendance, the latter acting as secretary.

The Chairman announced that the primary purpose of the meeting was to hear complaints and suggestions from the public as to the Department's proposed budget of maintenance and construction work for 1928 as required by law. Thereupon the roll of the counties of Florida was called and an opportunity given the public to present complaints and suggestions.

Baker County

Mr L. W. Mobley, of Baker County, requested that the Department widen State Road No. 1, between Lake

City and Jacksonville, in the interest of highway safety.

Citrus County

Mr. L. D. Moon, of Citrus County, brought to the Department a request from his county that the bridge across the Withlacoochee River, on State Road No. 5, at Dunnellon, be constructed as early as possible.

Columbia County

A letter to the Chairman from Mr. T. E. Getzen was presented and read. The letter stated that Mr. Sykes, Chairman of the Board of Trustees, and Mr. Getzen would appear before the Department to ascertain if \$180,000.00, proceeds of a bond issue, is turned over to the Department if the latter can proceed with the bridge on Road 5-A at an early period.

Duval County

Mr. A. T. Brown, Chairman of the Board of County Commissioners of Duval County, presented to the Department the following requests from his county:

(1) State Road No. 1, between Lake City and Jacksonville, to be widened.

(2) That the Atlantic Coastal Highway, between Jacksonville Beach and St. Augustine be located, and that stretch taken over for maintenance by the State.

Mr. Brown also asked when the Department will take over the remainder of the roads in Duval County, which it has agreed to put under State maintenance. He was informed by the Chariman that this will be done as soon as maintenance forces can be organized.

Flagler County

Mr. J. L. Jones, Chairman Board of County Commissioners, and Mr. A. D. Linn, of Flagler County, requested the Department to locate State Road No. 28, from Bunnell to Palatka, as soon as possible and to co-operate in building the same.

Hamilton County

Captain Hillman, member of the Department, transmitted to the Department a request of Hamilton County that the Department assist in extending the Suwannee Scenic Highway from Jasper to the Georgia State line.

Hillsborough County

Mr. W. T. Williams, Chairman Board of County Commissioners, pointed out the fact that the construction of State Road No. 17 between Plant City and the Polk County line does not appear in the budget. The Chairman informed Mr. Williams that this is a clerical oversight and that the project will be added to those authorized for construction. Mr. Williams also urged that Project 581-B, the Alafia River Bridge, be put under construction as soon as possible. The Chairman assured Mr. Williams that this bridge would be begun during the present year.

Lake County

Mr. Treadway, member Board of County Commissioners of Lake County, requested the Department to take over for maintenance State Road No. 22. Mr. J. R. Ashmore, also of Lake County, requested that Road No. 2, between Mt. Dora and Eustis, be located as early as possible.

Orange County

Mr. L. L. Payne, Chairman Board of County Commissioners of Orange County, requested that the Department take over for maintenance State Road No. 22, in that county. Mr. Payne extended an invitation to those present to visit and inspect the new county court house of Orange County.

Palm Beach County

Mr. W. F. Finch, of Lake Worth, requested that the State Road Department widen State Road No. 4 through the Town of Lake Worth to thirty (30) feet.

Pasco County

A resolution from the Board of County Commissioners of Pasco County was presented, in which the State Road Department was requested to make provision in its budget for 1928 for the repair and maintenance of State Road No. 23, through Sumter, Hernando and Pasco Counties, as authorized by House Bill No. 1069, Laws of 1927.

Sarasota County

Mr. Louis Lancaster, Chairman Board of County Commissioners, addressed the following queries to the Department:

1. If the counties will beautify State roads within the several counties, will the State Road Department undertake to maintain such beautification? The Chairman informed him that his inquiry would have careful attention and that he believed it to be a worthy proposal.

2. When will the road between Venice and the Myakka River be completed? He was informed that the grade was at this time 95% complete, and that

the hard surfacing will be undertaken as soon as the grade has had a chance to settle.

Seminole County

Mr. Frank K. Anderson, of Seminole County, requested that the Department investigate the feasibility and desirability of maintaining a portion of the old route of State Road No. 3, in Seminole County.

St. Johns County

M. J. D. Rahner, Chairman Board of County Commissioners, and Mr. W. A. MacWilliams, County Attorney, presented a petition requesting the Department to construct State Road No. 14 as early as possible to connect at the point where St. Johns County is building a road from State Road No. 14 to the ocean at Crescent Beach. They also requested hard-surfacing of Road No. 47.

Mr. Michael and Mr. John T. Scoville likewise presented petitions for the construction of State Road No. 14.

Sumter County

Mr. P. D. Howell represented the Board of County Commissioners of Sumter County and requested that the Department repair State Road No. 23 in said county, and that the bridge across the Withlacoochee River, between Wildwood and Inverness, on Road No. 33, be constructed.

Taylor County

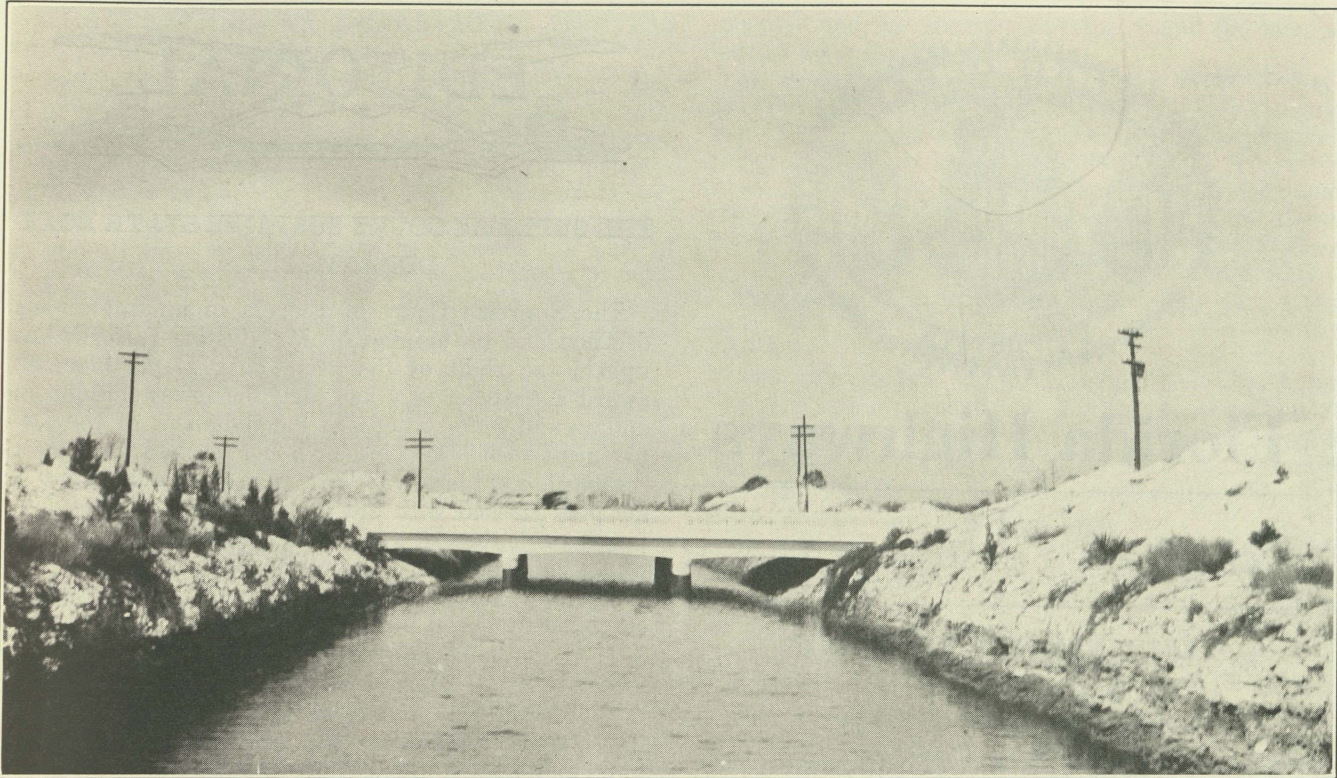
A letter was received from Mr. W. L. Weaver, Chairman Board of County Commissioners of Taylor County, expressing satisfaction with the budget for the year 1928.

The call of the roll of the counties having been completed the meeting was thrown open for public discussion and the Chairman invited any citizen present to present any matter he may have to the Department.

Mr. R. W. Parr, of Orange County, requested the construction of Road No. 2, between Plymouth and the Orange County line.

Judge R. B. Gautier presented a resolution to the Department protesting the location of State Road No. 26 along the banks of the North New River Canal. Judge Gautier was informed by the Chairman that only a preliminary survey has been run and that there will be a number of surveys before the road is actually located. Judge Gautier expressed his appreciation to the Department for its work in connection with the Tamiami Trail.

In addition to the instances stated above, representatives of various counties of the State were present and each expressed to the Department the congratulations and appreciation of their counties for what they characterized as the splendid work which has been done by the Department in the last two years. Among those referred to were Bay County, Mr. L. E. Vickery, Chairman Board of County Commissioners; Brevard County, Mr. A. W. Donelson, member Board County Commissioners; Clay County, Mr. A. G. Shands, Chairman Board of County Commissioners; Citrus County, Mr. F. D. Moon, member Board of County Commissioners; Dade County, Mr. I. E. Schilling, member of the Department, explained that the County Commissioners had been present before the meeting, but were in a hurry to get back and had expressed themselves as entirely satisfied, and had gone home; DeSoto County, Mr. C. E. McRae, Chairman Board of County Commissioners; Duval County, Mr. A. T. Brown, Chairman Board of County Commissioners; Escambia County, Mr. J. H. Bayliss, member of the Department; Flagler County, Mr. J. L. Jones, Chairman Board of County Commissioners; Glades County, Senator E. J. Etheridge; Hamilton County, Captain



Project 41-B, Road 4, Biscayne Canal Bridge. (No, this is not snow!)

Hillman, member of the Department; Hardee County, Senator E. J. Etheridge; Hendry County, Mr. S. L. Stewart, member Board of County Commissioners; Judge John R. Caldwell, of Hendry County; Hernando County, Senator Hugh Hale; Highlands County, Mr. J. M. Lee; Hillsborough County, Mr. W. T. Williams, Chairman Board of County Commissioners; Lake County, Mr. W. H. Richey, Chairman Board of County Commissioners, and Mr. C. B. Treadway, member Board of County Commissioners; Manatee County, Mr. J. P. Harlee, Chairman of Board of County Commissioners; Marion County, Mr. C. Ed. Carmichael, Chairman Board of County Commissioners; Lee County, Mr. Harrison Fuller, resident of Fort Myers; Orange County, Mr. L. L. Payne, Chairman Board of County Commissioners; Palm Beach County, Mr. T. M. O'Neal, Chairman Board of County Commissioners; Pinellas County, Mr. W. L. Hackney, Chairman Board of County Commissioners; Sarasota County, Mr. Louis Lancaster, Chairman Board of County Commissioners; Seminole County, Mr. Frank Kay Anderson; St. Lucie County, Mr. R. R. Martin, member Board of County Commissioners; Sumter County, Mr. R. B. Howell, representing Board of County Commissioners; Suwannee County, Captain Hillman; Volusia County, Mr. W. P. Wilkinson, member Board of County Commissioners; Dade County, Judge R. B. Gautier, of Miami; all of which appears in the stenographic report of the meeting which was made and is on file in the office of the Department.

There appearing no further business of a budgetary nature the Department was adjourned until 2:30 o'clock P. M.

Afternoon Session—2:30 o'Clock

The Department met pursuant to adjournment. Present as at morning session.

The Chairman stated that the meeting had been reg-

ularly called and was now open for the dispatch of such business as might be brought before it.

Road 50—Suwannee River Bridge.

On motion of Mr. Schilling, seconded by Mr. Green, the following resolution was unanimously adopted:

Resolved, That the Chairman be and he is hereby authorized to make application to the War Department for the approval of the construction of a bridge over Suwannee River, Road No. 50, located in Hamilton County, near Suwannee, Florida, which said bridge shall be constructed according to the plans submitted by the Chairman, said plans being dated March 14, 1928, and consisting of two sheets, sheet No. 1 showing the location and soundings for the bridge, sheet No. 2 showing the plan and elevation of the proposed bridge.

Road 28—Putnam County—Right of Way

On motion of Mr. Schilling, seconded by Mr. Green, the following resolution was unanimously adopted:

Whereas, The Department has surveyed and located State Road No. 28, in Putnam County, as is shown by plat of said location on file in its office and in the office of the Clerk of the Circuit Court of said Putnam County; and

Whereas, Said Department has found and determined, and does hereby find and determine, that it is necessary, wise and expedient to secure by purchase or condemnation the lands hereinafter described for the purpose of right of way for said State Road No. 28.

Now, therefore, be it Resolved, That the Board of Bond Trustees of Special Road and Bridge District No. 7 of Putnam County, be and they are hereby authorized and requested to secure for the Department, by purchase or condemnation, the following described lands, to-wit:

A right of way sixty-six (66) feet in width as shown on said plat through, over and across that part of

(Turn to page Five)



Florida Highways

Published Monthly

Official Publication of the State Road Department

PERSONNEL OF DEPARTMENT

F. A. HATHAWAY (*Jacksonville*), *Chairman*
(*Official Residence, Tallahassee.*)

E. P. GREEN, *Bradenton*

W. J. HILLMAN, *Live Oak*

J. HARVEY BAYLISS, *Pensacola*

I. E. SCHILLING, *Miami*

WALTER P. BEVIS, *Tallahassee, Secretary*

PERSONNEL OF EMPLOYEES IN GENERAL CHARGE OF THE WORK OF THE DEPARTMENT

Engineering Division

J. L. Cresap, Tallahassee.....State Highway Engineer
L. K. Cannon, Tallahassee.....Ass't. State Highway Engineer
G. L. Derrick, Tallahassee.....Bridge Engineer
C. W. DeGinther, Tallahassee.....Ass't. Bridge Engineer
Harvey A. Hall, Gainesville.....Testing Engineer
F. W. Berry, Jr., Tallahassee.....Office Engineer
John R. Stewart, Gainesville.....Supt. of Equipment
R. L. Bannerman, Marianna.....Div. Engr.—1st Div.
Counties—Bay, Calhoun, Escambia, Franklin, Gadsden, Gulf,
Holmes, Jackson, Jefferson, Leon, Liberty, Okaloosa, Santa
Rosa, Wakulla, Walton, Washington.

J. H. Dowling, Lake City.....Div. Engr.—2nd Div.
Counties—Baker, Bradford, Clay, Columbia, Dixie, Duval, Hamil-
ton, Lafayette, Madison, Nassau, Suwannee, Taylor, Union.

R. J. Cassie, Fort Pierce.....Div. Engr.—3rd Div.
Counties—Brevard, Indian River, Martin, Okeechobee, St. Lucie.

L. B. Thrasher, Ocala.....Div. Engr.—4th Div.
Counties—Alachua, Citrus, Lake, Levy, Gilchrist, Marion, Put-
nam, St. Johns, Sumter, Flagler, Volusia.

A. W. Kinney, Lakeland.....Div. Engr.—5th Div.
Counties—Hernando, Hillsborough, Manatee, Orange, Osceola,
Pasco, Pinellas, Polk, Seminole.

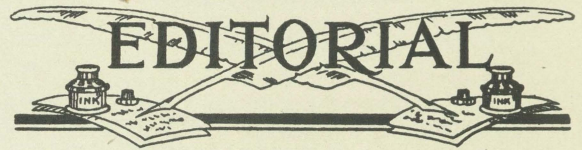
R. C. Fergus, Fort Lauderdale.....Div. Engr.—6th Div.
Counties—Broward, Dade, Monroe, Palm Beach.

Henry Wilson, Punta Gorda.....Div. Engr.—7th Div.
Counties—Charlotte, Collier, DeSoto, Glades, Hardee, Hendry,
Highlands, Lee, Sarasota.

Auditing Division

S. L. Walters, Tallahassee.....Auditor

B. A. Meginniss, Attorney for the Department,
Editor and Business Manager.



THE SUPREME COURT SUSTAINS STATE ROAD DEPARTMENT.

The Supreme Court of Florida in an unanimous decision and on opinion by Mr. Justice Buford, has upheld the right of the State Road Department to award a contract to other than the lowest bidder in dollars and cents, where, in the judgment of the Department such lowest bidder is not deemed the lowest *responsible* bidder. In short, that the Department is not only clothed with the authority, but the law confers upon it the *duty* of ascertaining in each instance which bidder is the lowest responsible bidder for the contemplated work, having regard to considerations other than those of mere amount in money.

The holding is in the recent case of J. N. Willis et al. vs. State Road Department et al., and affirmed a decree of the Circuit Court for Leon County.

While the Department has never had any doubt as to its authority in the matter, this right has been, and is being, challenged in certain quarters, and the decision of the Supreme Court is, therefore, pleasing evidence that the Department is conducting its affairs in accordance with the laws and is proceeding along lines which have the sanction of the highest judicial tribunal of the State.

The Court's decision, some twenty-four typewritten pages, is too long for reproduction here, but the following excerpt is indicative of the doctrine announced by the Supreme Court:

"Certainly the Legislature intended, and did vest in the State Road Department the power, authority and duty to determine not only from a standpoint of dollars and cents who should appear to be the lowest bidder, but also to determine from information available to and acquired by the State Road Department what bidder or bidders would be adjudged by the State Road Department to be responsible bidders for each particular contract sought to be awarded and from such responsible bidders for such particular contract to then determine the lowest of such responsible bidders, and in determining the responsibility of the bidder it became and was the duty of the Road Department to ascertain the degree of experience, the reputation for performance, the possession of facilities, the outstanding obligations, the obligations then assumed, or about to be assumed, the integrity and credit, as well as other matters which might touch and have influence upon the ability of each bidder to perform the contract for which he had placed a bid."

The Court also approved in this connection, the language of the Supreme Court of the State of Kansas in the case of Williams vs. City of Topeka, 118 Pac. 864, where it is said:

"* * * We conclude that the word 'responsible' in the phrase 'lowest responsible bidder' was used by the Legislature in the sense in which it had long been interpreted by the courts and text-writers, and must be held to imply skill, judgment, and integrity necessary to the faithful performance of the contract, as well as sufficient financial resources and ability. * * *"

TRANSACTIONS OF DEPARTMENT MEETING

(Continued from page 3)

Section 33, Township 9 South, Range 26 East, comprising all of Section 33 except forty-six acres, and that part of the northwest quarter of the northeast quarter lying between the G., S. & F. R. R. Company's right of way and the present county highway in Section 3, Township 10 South, Range 26 East; also that part of Merwin Park known as Section G, a part of the southeast quarter of Section 33, Township 9 South, Range 26 East, situated in the County of Putnam, State of Florida, and owned by Malcolm McClellan, or McClellan Properties, Inc.

Be it further Resolved, That said Board of Bond Trustees be and they are hereby authorized to use the name of this Department in any condemnation proceeding or proceedings necessary to carry out the purposes of this resolution, or to proceed in their own name as authorized by law.

Be it further Resolved, That in the event that they shall elect to proceed in the name of this Department, that their attorney be and he is hereby authorized and empowered to prepare, execute and file all necessary pleadings and affidavits, and take all steps necessary under the laws of Florida in condemnation proceedings for State road purposes.

Award of Contracts Approved

On motion of Mr. Schilling, seconded by Mr. Green, the following resolution was unanimously adopted:

Whereas, Bids were asked by this Department for the construction of the projects hereinafter designated; and

Whereas, The firms and individuals respectively named were the lowest responsible bidders thereon;

Now, therefore, be it Resolved, That the action of the Chairman in awarding and executing the contracts hereinafter named, be and the same is hereby ratified, approved and confirmed, which said contracts are as follows, to-wit:

Project No. 807-A—Contractor, R. C. Huffman Construction Co.; county, Palm Beach; type, R. B. S. T.; length, 10.81 miles; amount, \$183,375.66.

Project No. 807-C—Contractor, R. C. Huffman Construction Co.; county, Palm Beach; type, R. B. S. T.; length 6.14 miles; amount, \$90,839.59.

Project No. 804—Contractor, C. A. Steed & Son, Inc.; county, Glades; type, R. B. S. T.; length, 18.55 miles; amount, \$378,257.75.

Project No. 659—Contractor, Duval Engr. & Contr. Co.; county, Clay; type, R. B. S. T.; length, 7.25 miles; amount, \$86,772.05.

Award of Contracts

Projects 815, 819, 823 and 824, Okaloosa County:

On motion of Mr. Bayliss, seconded by Mr. Schilling, the following resolution was unanimously adopted:

The Department having carefully considered the bids received on March 6th, 1928, for clearing, grubbing, grading and the necessary drainage structures on the above projects, and having found that the lowest responsible bidders therefor are the following, respectively, to-wit:

Project 815, Silas Gibson, Milton, Florida; Projects 819, 823 and 824, W. J. Bryson Paving Company, Jacksonville, Florida;

Now, therefore, be it Resolved, That the bid of Silas Gibson, of Milton, for the clearing, grubbing, grading and necessary drainage structures on Project 815 in the sum of \$55,163.85, be and the same is hereby

accepted and the contract therefor be and the same is hereby awarded to said bidder.

Be it further Resolved, That the bid of W. J. Bryson Paving Company, of Jacksonville, for clearing, grubbing, grading and the necessary drainage structures on Projects 819, 823 and 824, in the respective sums of \$19,072.43, \$30,986.68, and \$54,452.75, be and the same are hereby accepted and the contracts therefor be and the same are hereby awarded to said firm.

Project 743—Road 10—Bay County

On motion of Mr. Bayliss, seconded by Mr. Schilling, the following resolution was unanimously adopted:

The Department having carefully considered the bid received on March 6th, for the construction of timber bridges on the above project, and having determined that Maddox Machinery & Foundry Company, of Archer, is the lowest responsible bidder therefor; now, therefore,

Be it Resolved, That the bid of Maddox Machinery & Foundry Company, in the sum of \$12,522.25 be and the same is hereby accepted and the contract therefor be and the same is hereby awarded to said firm.

Road 10—Leon County—Right of Way

On motion of Mr. Bayliss, seconded by Mr. Schilling, the following resolution was unanimously adopted:

Whereas, This Department has surveyed and located State Road No. 10, in Leon County, as is shown by plat of said location on file in this office, and on file in the office of the Clerk of the Circuit Court of Leon County, a copy of which is hereto attached and marked "Exhibit A"; and,

Whereas, Said Department has found and determined and does hereby find and determine that it is necessary, wise and expedient to secure by purchase or condemnation the lands necessary for a right of way as shown by said plat; now, therefore,

Be it Resolved by the State Road Department of the State of Florida, That the County Commissioners of Leon County, Florida, be and they are hereby requested and authorized to secure by purchase or condemnation the lands necessary for said right of way for said road along the line shown on said plat.

Be it further Resolved, That said County Commissioners be and they are hereby authorized to use the name of this Department in any condemnation proceedings necessary to carry out the purposes of this resolution, or to proceed in their own name as authorized by law; and

Be it further Resolved, That in the event that they shall elect to proceed in the name of this Department, that their attorney be and he is hereby authorized to prepare, execute and file all necessary pleadings, affidavits and documents in connection therewith.

Road 10—Wakulla County—Right of Way

On motion of Mr. Bayliss, seconded by Mr. Schilling, the following resolution was unanimously adopted:

Whereas, This Department has surveyed and located State Road No. 10 in Wakulla County, as is shown by plat of said location on file in this office, and on file in the office of the Clerk of the Circuit Court of Wakulla County, a copy of which is hereto attached and marked "Exhibit A"; and

Whereas, Said Department has found and determined and does hereby find and determine that it is necessary, wise and expedient to secure by purchase or condemnation the lands necessary for a right of way as shown by said plat; now, therefore,



The effective type of detour sign in use in the First Division. Its efficiency is as marked by night as by day because of the large red reflector in the center

Be it Resolved by the State Road Department of the State of Florida, That the County Commissioners of Wakulla County, Florida, be and they are hereby requested and authorized to secure by purchase or condemnation the lands necessary for said right of way for said road along the line shown on said plat.

Be it further Resolved, That said County Commissioners be and they are hereby authorized to use the name of this Department in any condemnation proceedings necessary to carry out the purposes of this resolution, or to proceed in their own name as authorized by law; and

Be it further Resolved, That in the event that they shall elect to proceed in the name of the Department, that their attorney be and he is hereby authorized to prepare, execute and file all necessary pleadings, affidavits and documents in connection therewith.

Resolution of Thanks

On motion of Mr. Schilling, seconded by Mr. Bayliss, the following resolution was unanimously adopted:

Be it Resolved, That the sincere thanks of this Department be extended to the people of Orange County, and particularly to Honorable L. L. Payne, Chairman of the Board of County Commissioners; Major Chas. A. Browne, County Engineer, and the Angebilt Hotel, for the many courtesies extended to the Department on the occasion of this its annual budget meeting at Orlando.

State Road No. 15—Citrus County

Mr Frederick Van Roy, of Citrus County, appeared before the Department and requested that it use its influence to have the county spend available bond moneys on State Road No. 15 in that county. Mr Van Roy was advised that the Depart-

ment has no authority over such funds unless and until turned over to it, and is not in a position to request any action of the county with reference to the application of county funds.

Expense Accounts Approved

On motion of Mr. Schilling, seconded by Mr. Green, the expense accounts of the members were approved and ordered paid.

There appearing no further business, the Department was adjourned.

Big Year in Road Building

ROAD construction in 1928 will at least equal and probably slightly exceed the highest mark recorded in any preceding year, according to reports received by the Bureau of Public Roads of the United States Department of Agriculture and made public by the bureau.

Improvement of the State and Federal-aid highway systems under the supervision of the highway departments of the several States will go forward during the season now opening with a construction of more than 20,000 miles of surfaced roads and about 8,000 miles graded and drained.

The State reports also indicate that at least 240,000 miles of the total of 288,000 in the State highway systems will be maintained this year under the supervision of the State highway departments, a fact which should insure the traveling public a high degree of road service.

Funds estimated as available for expenditure during the year by the State highway departments are

(Turn to page ten)



Project 614, Road No. 5, Sarasota County

Highway Accidents in 1927

By Charles M. Upham, Director, American Road Builders' Association

DURING every twenty-four hours of 1927 an estimated average of 2,261 persons were killed or injured in highway accidents—one every 39 seconds! The estimated economic loss resulting from these accidents was \$672,097,000 not including insurance premiums—nearly two million dollars every day of the year.

The 1927 casualties, according to the American Road Builders' Association, showed an increase of 1,316 deaths over 1926. The total fatalities for 1927 was placed at 26,618, and the number of serious injuries at 798,700. Minor accidents involving property damage only, were not taken into consideration in the statistical report released by the association, although these accidents have been estimated to occur at the rate of 25,000 daily.

What do these figures show? Do they mean that the American people are becoming inherently reckless at the wheel of an automobile? Do they mean that modern cars are too fast or too inefficient to be safely operated on our present system of streets and highways and under the present traffic regulations?

A careful analysis of these figures will show that no one thing may be stated as the cause of highway accidents. Such an analysis, however, will show the following facts:

1st. That the human factor is responsible for 95 percent of all accidents and the mechanical factor responsible for the remaining negligible portion.

2nd. That the human factor which causes highway accidents is in a large degree caused by certain

definable physical conditions such as complex traffic laws, traffic congestion, discourtesy on the part of other motorists, carelessness on the part of other motorists, physical incompetency, lack of confidence in the mechanical dependability of a motor vehicle and the improper conduct of pedestrians.

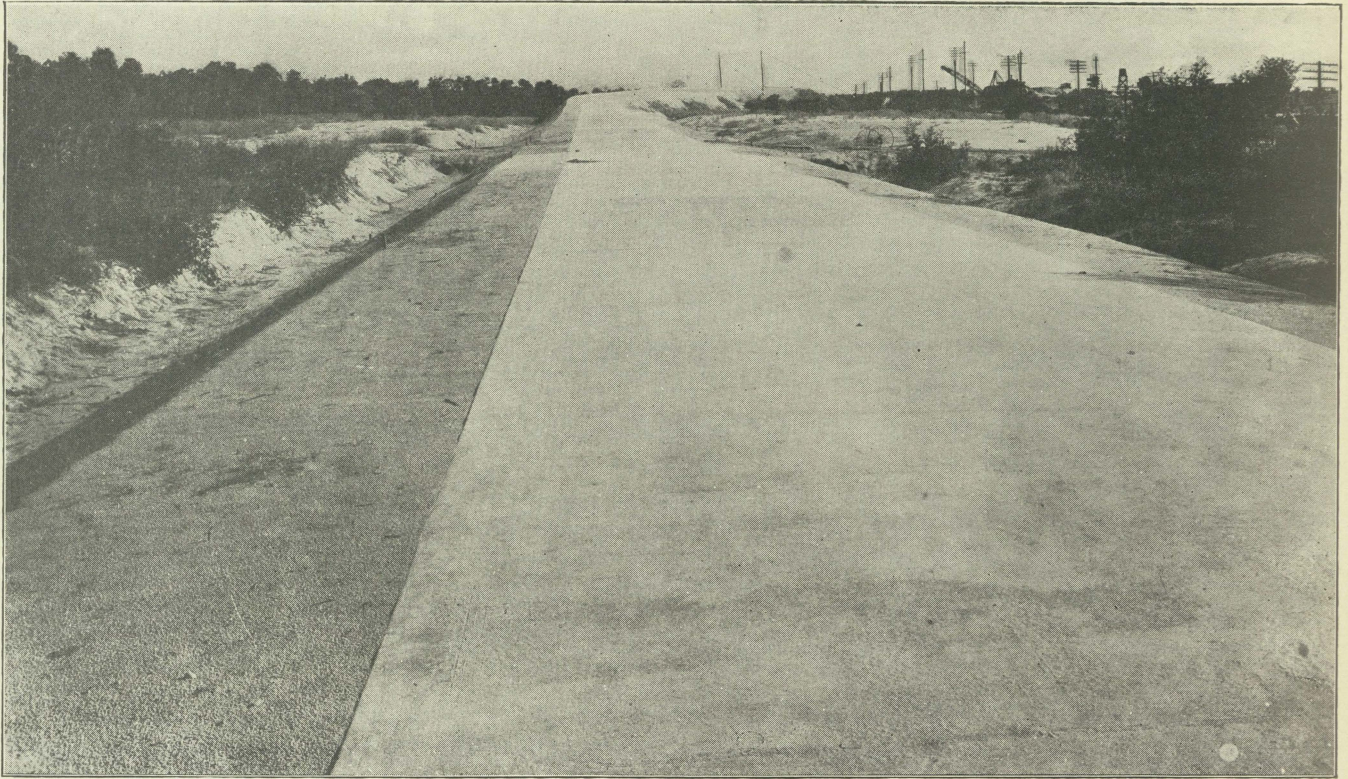
3rd. That approximately sixty per cent of all fatalities are pedestrians.

4th. That more than 7,300 of the fatalities in 1927 were children of school age, and that nearly twice as many persons are killed between the ages of 6 and 12 than during any other similar group of years between 1 and 70.

5th. That although highway accidents increased considerably during 1927, that increase was not out of proportion to the increased registration of motor vehicles and the growth in population.

6th. That accidents involving pedestrians continue to grow in number faster than accidents involving two vehicles or collisions with immobile objects.

A great mass of data has been collected by organizations interested in highway safety. Study of this material has resulted in many and varied conclusions as to the best method for reducing accidents. The American Road Builders' Association last year made such a study, and concluded that the individual alone could be held responsible for curbing the fast growing number of fatal and non-fatal highway accidents. A campaign for Courtesy and Caution was launched and the slogan found its way into thousands of schools, churches, civic and industrial



Project 692, Road No. 4, St. Lucie County.

organizations and private homes of the United States.

The Courtesy and Caution method for reducing highway accidents is marked with simplicity. A study of the statistical information available has led to the following objectives to be used in the conduct of such a campaign for national highway safety:

1st. The education of pedestrian traffic in the principles of simple courtesy and caution while on the public streets. The use of common sense is recommended in lieu of the cut and dried adherence to a complex list of safety rules.

2nd. The thorough examination and licensing of all drivers of motor vehicles.

3rd. The adoption of a uniform simple code of traffic laws, both state and municipal.

4th. The education of drivers in the principles of simple courtesy and caution.

No accurate detailed information as to the causes of accidents and the number occurring is available. The figures given in this article, however, are approximate and are drawn from all accessible information. The following synopsis of the relative importance of accident causes is given to emphasize the paramount necessity for the practice of Courtesy and Caution under varying conditions.

It is estimated that 11,765 persons were killed during 1927 in accidents caused principally by motorists. Fatalities caused principally by pedestrians is placed at 11,367, and those resulting from accidents caused principally by physical conditions at 3,486. In estimating for tabulation the various causes for these accidents, the American Road Builders' Association has used a progress report issued by the National Automobile Chamber of Commerce for 100 cities in 1926. The table follows:

FATALITIES CAUSED PRINCIPALLY BY MOTORISTS

Total killed in 1927.....	11,765
Inattention	32 pct. 3,765
Speeding	23 pct. 2,706
Traffic violation	20 pct. 2,353
Intoxication	9 pct. 1,059
Miscellaneous	16 pct. 1,882

FATALITIES CAUSED PRINCIPALLY BY PEDESTRIANS

Total killed in 1927.....	11,367
Children playing in the street or crossing in violation of traffic regulation	32 pct. 3,638
Adult jay-walking	27 pct. 3,069
Inattention	16 pct. 1,819
Confusion	14 pct. 1,591
Other causes	11 pct. 1,250

FATALITIES CAUSED PRINCIPALLY BY PHYSICAL CONDITIONS

Total killed during 1927.....	3,486
Fog, snow or rain.....	37 pct. 1,290
Defect in vehicle	19 pct. 662
Skidding	16 pct. 558
Road defect	11 pct. 383
Strong lights	7 pct. 244
Poor street light	7 pct. 244
Confusion in dimming	3 pct. 105

From the foregoing table it may readily be seen that most highway accidents are from causes which cannot be regulated by any number of traffic regulations. The three principal causes—inattention, children playing in or crossing the streets, and adult

jay-walking took 12,291 lives, or nearly 52 per cent of the total 23,496 fatalities for which causes were listed. No amount of enforceable traffic law will reach these causes.

What then, is the solution? It is impossible to eliminate highway accidents. With 23,000,000 vehicles using the streets and highways of a country peopled with 110,000,000 human beings, there will always be fatalities, both avoidable and unavoidable. It is not unreasonable to believe, however, that the present toll is much too high, and that by concen-

trated effort on the part of organizations interested in the problem, it may be considerably reduced.

The most important immediate step that may be taken in behalf of highway safety is education of the public, both pedestrians and motorists, through the newspapers, the schools, the churches, and through every conceivable medium for passing on a vital message. Only when the individual practices the principles of simple courtesy and caution as a part of his natural self may the nation hope for a reduction in the toll it pays for automotive transportation.

Fifty Nations Send Highway Leaders to United States Meet

Coolidge Invites International Association of Road Congresses to Assemble in Washington—Senator Phipps and Representative Linthicum Sponsor Resolution in Senate and House.

AT THE invitation of the United States Government, the leading highway engineers, economists and administrators of the world will meet in Washington in 1930 to attend the Sixth International Association of Road Congresses.

Fifty nations and five continents are expected to send hundreds of delegates to the meeting, which will be historic in that it will mark the first time the International Road Conference has assembled in the Western Hemisphere.

The resolution authorizing the invitation has been signed by President Coolidge, having passed the Senate and the House of Representatives under the able leadership of Senator Lawrence C. Phipps, of Colorado, and Representative J. Charles Linthicum, of Maryland. Senator Phipps, as a member of the Senate Committee on Post Offices and Post Roads, sponsored the measure in the Upper Chamber, while Representative Linthicum, of the Committee on Foreign Affairs, introduced the bill before the House and followed it through committee hearings.

The formal invitation will be transmitted by Secretary of State Kellogg, by direction of President Coolidge, to the Permanent International Association of Road Congresses, the official name of the organization. The association had previously voted to accept the invitation if extended.

The willingness of the association officials to bring the sixth conference to the United States is held to be significant. It is recognition on the part of the Old World, with its background of centuries of highway building, of the new order of achievement of the New World in the mass production and methods of administration of highway construction and maintenance. While highway engineering on the Continent antedates the roads of the United States by thousands of years, the utility, science, and economic benefits of highway transportation, it is held, have reached their highest fruition in this country and it is the desire to observe these results, it is believed, that prompted the engineers of Continental Europe and Asia to accept the invitation of the United States.

At the Fifth International Conference at Milan in 1926, the delegates from the United States tentatively advanced the project of bringing the next conference to the United States. Their overtures, expressing the hope that it would prove possible for

the United States to extend and the conference to accept an invitation for the next meeting to be held in Washington, were cordially received. The delegates from the United States at the Milan Conference were Thomas H. MacDonald, Chief of the Bureau of Public Roads and Chairman of the Highway Education Board; Pyke Johnson, Executive Director of the Pan American Confederation for Highway Education; H. H. Rice, Treasurer of the National Automobile Chamber of Commerce; J. N. Mackall, Chairman of the State Roads Commission for Maryland; Paul D. Sargent, State Highway Engineer for Maine; and H. H. Kelly, European Commercial Attache from the Department of Commerce.

Senator Phipps, commenting on the importance of inviting the world engineers to the United States, said:

"For some years Congress has realized the vital necessity of good roads, and it is now highly desirable to encourage such activities in other countries. The International Roads Congress is world-wide in its scope, and our invitation will continue the leadership of the United States in the field of highway development.

"I believe that the proposed conference will prove of great value to this country and to every nation which participates in it. These meetings turn the minds of people to peaceful pursuits, tend to promote international good will, and add greatly to the nation's prosperity and development."

Representative Linthicum has long been a friend of highway improvement, not alone in his state of Maryland, but for the nation at large. He, too, has vigorously sponsored the proposal that the United States make available to other nations of the world her experiences in highway building and highway transport.

Discussing the invitation, Representative Linthicum said:

"The United States has made wonderful progress in the building of good roads, and it is highly essential that we transmit this knowledge to other lands. We have many things to tell them about our methods of building roads. The proposed International Conference will help social conditions, accentuate trade, and better consolidate our position abroad."

The request for the invitation was formally made of President Coolidge, by Roy D. Chapin, United



Project 673, Road No. 1, Gadsden County.

States delegate to the International Commission of the Conference, which met last year in Paris. Mr. Chapin is President of the National Automobile Chamber of Commerce. Other organizations that hastened to go on record favoring the proposed Conference include the Highway Education Board, the American Association of State Highway Officials, the Rubber Association of America, and the Pan American Confederation for Highway Education, the latter an international organization, but restricted to the Western Hemisphere.

Each of the government departments and bureaus concerned with road building, industry, or international affairs, also approved the invitation.

Mr. MacDonald, commenting on the proposed Conference, said:

"This nation has much of valuable experience in highway matters to share with other countries. As a nation, we have profited from the experiences of older nations.

"The United States has made her great contributions to civilization. We believe we have done so in the political field, in our form of government. But the first field in which our leadership will be easily conceded is that of engineering achievement, of organization and mass production. This is the great contribution the United States has made to civilization, measured by standard of living.

"It will be a salutary achievement if the same principles of engineering organization and quantities of production which have been so successfully demonstrated in the United States may be applied universally to produce adequate mileage of serviceable highways at the lowest possible cost. The proposed International Conference, I believe, will further this aim."

BIG YEAR IN ROAD BUILDING

(Continued from page 6)

about 25 per cent greater in total amount than similar estimates indicated at the beginning of last season. Although it is not possible, so early in the season, to anticipate closely the yield of gasoline and motor vehicle taxes and other sources of revenue it is practically certain that the funds available to all State highway departments for construction and maintenance of roads and bridges will exceed \$750,000,000, and local revenues, expendable by county and local authorities, will swell the highway total to upwards of \$1,300,000,000.

Details are not available concerning the work to be done by county and local authorities. It is anticipated that the year's work under State supervision will result in the construction of nearly 9,000 miles of hard-surfaced pavements, upwards of 12,000 miles of less expensive surfaced roads, and 8,000 miles of road adequately graded and drained.

After the Round-Up

In the early days of the World War the officer in charge of a British post, deep in the heart of Africa, received a wireless message from his chief:

"War declared. Arrest all enemy aliens in your district."

A few days later the chief received this communication:

"Have arrested seven Germans, three Belgians, four Spaniards, five Frenchmen, a couple of Swedes, an Argentinian and an American. Please inform me whom we are at war with."—Watchman-Examiner,

Motoring Under the Hudson

Holland Tunnel, Longest Vehicular Tube in the World, Now Connects New York With the Mainland

By G. SPENCER LYMAN

PREVIOUS to last November New Yorkers returning to their homes over in "Jersey" sat at the wheels of their cars drawn in long lines before the ferry slips. They fumed and fussed. Maybe they would get on the next boat; maybe not. And even if they did they did not particularly relish the trip, pitching and swaying across the choppy waters of the lower Hudson.

Today these same New Yorkers calmly push the throttle down a little more and speed at a thirty-mile-an-hour clip toward home, unmindful of the choppy waters of the Hudson. The reason—the river is above their heads,

"The greatest city on the continent is now linked tightly with the mainland," said editorial writers on the opening of the new Holland vehicular tunnel under the Hudson River from Manhattan Island to New Jersey. Conceived eight years or more ago by C. M. Holland, who died before his dream was realized, it was opened to motor traffic last November at a cost of \$48,000,000. Excavation was started in 1920; the bores met under the river in 1924 and three years later the first stream of automobiles started to move through it.

Without a doubt the Holland tunnel is a masterpiece of engineering achievement. The longest vehicular tunnel in the world, it stretches 9,250 feet from mouth to mouth. More than a mile of this footage is under the river. The tunnel is actually a double tube, one carrying eastbound traffic and the other carrying westbound. Engineer problems were met and conquered during the course of construction. The shifting silt of the river above had to be held back while the shields drove their way forward with mathematical accuracy to their appointed meeting place beneath the water. Pressures had to be overcome, not only in the process of boring, but for all time, by the design and structure of material. Gases endangering the lives of the workmen had to be neutralized by special processes so that the work could go on.

A small insight into the gigantic proportions of such an achievement may be gained from these figures: the twin tubes are ventilated by eighty-four 200-horsepower blower fans which sweep the carbon monoxide automobile gases from the tunnel forty-two times each hour. There are two roadways, paved with granite blocks, each 20 feet wide. Headroom is 13 feet, 6 inches.

Every precaution against accident has been taken. Policemen are stationed a few hundred feet apart. The entire length of the tunnel is well lighted and in addition there are frequent signal lights, fire-extinguishers, fire-hose, air vents and other emergency appliances. More than this there are powerful trucks, one at either end, prepared to run in and haul out any car that may be disabled. The speed limit is thirty miles an hour.

Every precaution is taken to guard against any car stalling in the middle of the tunnel, thereby hold-

ing up traffic. Police stationed at the entrance of each of the twin tubes carefully examine each car that bears any evidence of possible failure to make the trip. Each motorist is warned to be sure before entering that he has plenty of gasoline. For those few, however, who might run out of gasoline despite the warning, there are emergency rations at intervals in the tunnel—but the price is sufficiently high to insure against any repetition of forgetfulness.

The capacity of these tubes is estimated at 46,000 vehicles a day, although 52,000 passed through on the opening day. The cost of operation per day is \$11,232 and the operators expect the project to pay for itself within twenty years. A nominal toll is now charged, but as soon as the capital and interest have been paid off, it will be used by the public free of charge.

The opening of this tunnel has obviously answered a great need. No longer will New York be in danger of a food shortage as a result of either winter ice jams on the Hudson or a railroad or ferry strike. Now one can motor from Jersey City to New York in six minutes.

The greatest practical value of the tunnel, however, is found in the hours added to the lives of those who use it—hours previously lost in making the slow ferry trip across the river. During the rush hours, motorists intent on bringing their cars into New York or out of New York were frequently forced to give up a full hour to the passage. Now they have the reward of an extra hour's sleep in the morning and in the evening arrive at their homes approximately an hour earlier for dinner, recreation or sleep.—The Studebaker Wheel.

Often Half Baked

"Papa," said the small son, "what do they mean by college bred? Is it different from any other kind of bread?"

"My son," said the father, "it is a four-year's loaf."—The Nations Highways.

Women are like money; keep 'em busy or they lose interest.—Everybody's Weekly.

Two men who had traveled were comparing their ideas about foreign cities.

"London," said one, "is certainly the foggiest place in the world."

"Oh, no it's not," said the other. "I've been in a place much foggier than London."

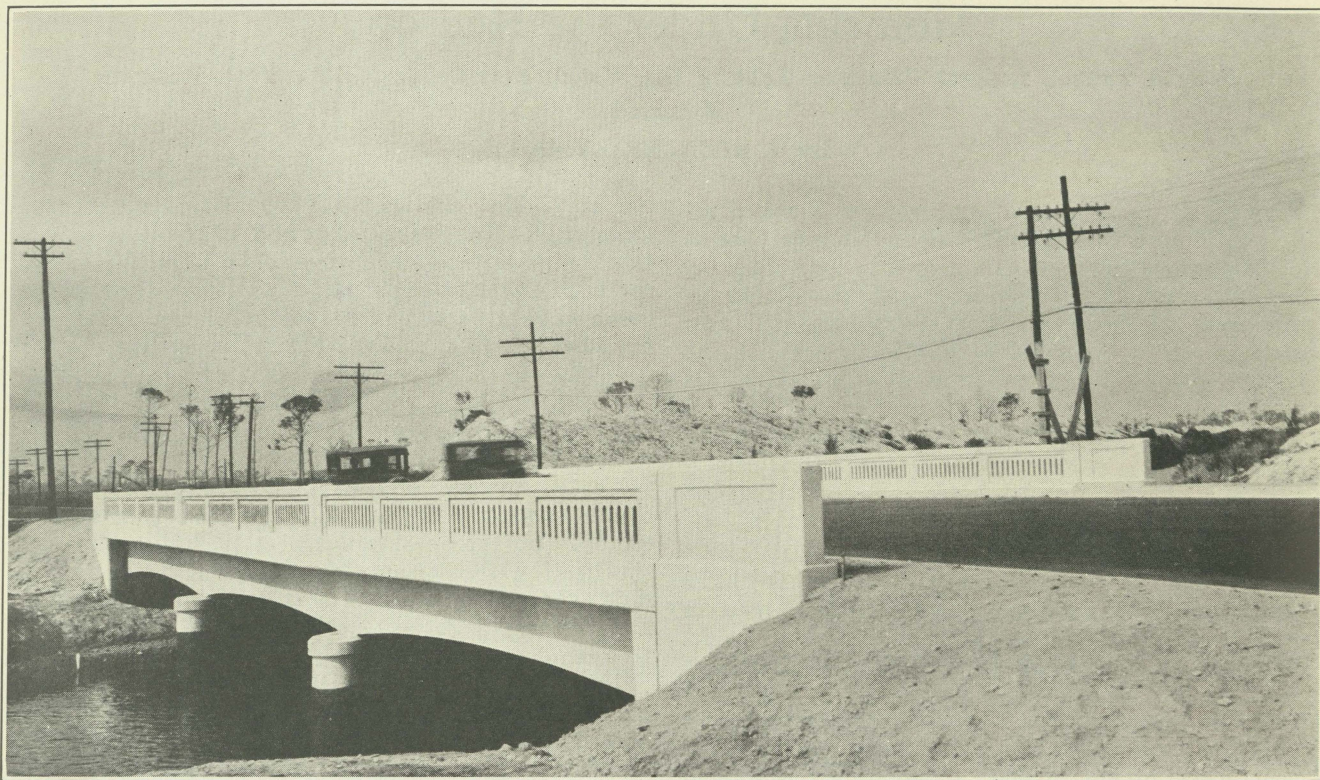
"Where was that?" asked his interested friend.

"I don't know where it was," replied the second man, "it was so foggy!"—Buddgette.

Father: So you borrowed the car last night to take the boys for a spin, eh?

Son: Er—well—

Father: It's all right—only one of them left his powder puff under the seat.—Gaiety.



Project 41-B, Road No. 4, Biscayne Canal.

Why Proceeds from War Goods Should Be Used for Roads

By **EDWARD E. BROWNE**

Congressman from Wisconsin

CONGRESSMAN BROWNE, a former member of the House Committee on Roads, recently introduced a bill in Congress providing that bonds aggregating \$407,341,145 given by the French government to the United States for surplus war material be turned over to the Department of Agriculture for road building purposes. Under the provisions of the bill, 90 per cent of the fund would be distributed among the States as Federal aid and the remaining 10 per cent would be utilized equally for building roads within the national forests and for boulevards within the regional area of Washington, D. C.

TEN years of Federal aid for roads has convinced the most skeptical of the public that the money appropriated by Congress for the improvement of our highways was thoroughly justified. I do not believe that any other appropriation for internal improvements has ever benefited so many of our people or has caused so much happiness as the appropriation for the improvement of our highways.

The question asked is not should the Federal Government continue to assist in building interstate roads, but why does it not give more assistance, and why did it not continue the good work of Federal aid for roads begun by Washington and Jefferson over 100 years ago.

The 23,000,000 owners of automobiles, which means practically every family in the United States,

are urging that road building be hastened in order to keep pace with the increased traffic demands.

Automobile vehicles have increased from 1916, when Congress passed the Federal aid road act, from three and one-half millions to over 23,000,000 and are valued today at the stupendous sum of \$14,000,000,000. These auto vehicles are almost 100 per cent perfect and are being operated upon highways which are not 25 per cent efficient.

It is estimated that the increased wear and tear on the 23,000,000 auto vehicles by reason of the imperfect roads over which they are being operated amounts annually to from six to seven hundred million dollars.

The question of whether the Federal Government is contributing its share to the building of interstate roads is also frequently asked. I desire to discuss this question and other questions related to it, and also the source from which we propose to get the money authorized to be appropriated.

February 28, 1919, Congress passed a law directing the Secretary of War to transfer to the Secretary of Agriculture all war material, equipment, and supplies, declared surplus, to be distributed among the States as a highway fund under the Federal aid act. At the close of the war the United States had surplus war supplies and road equipment in France estimated at fully \$2,000,000,000. Before the order for the return of the surplus war material, equipment, and supplies then in France had reached France negotiations had been made by our repre-

sentatives in France for the sale of the property to France at approximately 20 cents on the dollar. As this surplus war material was sold the Government of France issued its bonds to the United States for the same as follows:

August 1, 1919, \$400,000,000, due August 1, 1929. On May 9, 1920, \$6,566,762.42. July 5, 1920, \$774,382.59, due July 5, 1930. These bonds aggregate \$407,341,145.01 and bear interest at the rate of 5 per cent per annum and are in the Treasury of the United States and payable semiannually. France is paying interest upon these bonds currently.

Congress by its action, February 28, 1919, had given the surplus war material to the Agricultural Department to be distributed among the States for the building of roads. These bonds therefore rightfully belong to the several States to aid them in the construction of their roads.

It is the intention of the Debt Settlement Commission to place these bonds with the indebtedness of France to the United States contracted prior to our going into the war, which aggregate considerably over \$3,000,000,000, and accept obligations extending over a period of 62 years, with no interest until 1930 and then 1 per cent interest until 1940 and 2 per cent from 1940 to 1950 and graduated until the same bears 3½ per cent interest.

I maintain that the indebtedness for war material sold to France for which she gave the United States bonds for \$407,000,000 has an entirely different status from the \$3,000,000,000 indebtedness which was loaned France during the period she was in war. I also maintain that the bonds issued for surplus war supplies rightfully belongs to the highway fund.

It should be remembered that Federal aid is only given for a system of roads embracing 7 per cent of the total road mileage of any State, the remainder, or 93 per cent, of the roads have to be constructed and maintained by the States and the sub-divisions of the State.

In order to obtain Federal aid for roads the States are required to raise a large amount of money, and the States in return have called upon the counties and smaller subdivisions of the State to contribute. In this way the States have raised a much larger amount of money than they have received from the Federal Government, besides being obliged to maintain roads which serve the entire Nation. This heavy tax burden upon the farmer has helped to make farming unprofitable. The farmer is the victim of excessive taxes. The farmer's taxes the last 10 years have increased over 30 per cent more than the taxes of the man living in the city or village. We believe as a matter of justice that the appropriation asked for in this bill should be distributed by the Secretary of Agriculture under the present Federal aid act and the States should not be required to pay to exceed 20 per cent of the cost of the roads built with the moneys received from this fund. This bill provides that the money received shall be expended upon primary or interstate or State trunk highways and shall be durable roads.

The 7 per cent of roads upon which the Federal Government gives aid aggregated 200,353 miles. In the 10 years of Federal aid, with the contributions of States and local units only 56,017 miles have been completed, and 144,336 miles remain unimproved. I get that from the Bureau of Roads. At this rate

it will take us from 25 to 30 years to complete the system, and in the meantime the increased wear and tear on automobiles because of our incomplete and poorly constructed system of highways will cost us in the extra wear and tear on automobiles, it is estimated, at the rate of \$600,000,000 a year.

Before the invention of the automobile when traffic moved slowly over our highways in horse-drawn vehicles the improvement of highways might have been considered of only local concern. The invention of the automobile revolutionized transportation over our highways. The situation has changed very greatly since the Federal aid road law was passed in 1916. Besides the 3,000,000 trucks and the 20,000,000 automobiles which are traveling over the highways there are 80,000 buses, 7,284 of which are interstate buses. There are 32,788 buses which are carrying school children. Sixty steam railroads are using buses as feeders for their railroads. Fifteen million four hundred and eighty-nine thousand motorists from all the States of the Union visited the national forests in 1926, a million and one-half more than the preceding year.

The State highway engineer of Wisconsin informed me the other day that an accurate record of the number of cars with out-of-State licenses coming into the State of Wisconsin had been kept, and the number of people these cars brought into the State in a hundred days during the summer season, and that over 4,000,000 people from out of the State had come into Wisconsin by automobile during that time.

In determining what portion of the cost of interstate highway should be paid by the States and the Federal Government, we should consider first, that under the Federal aid road act the burden of maintaining these roads is borne wholly by the States. No road made is so perfect that it does not require constant attention and maintenance. Roads have to be constantly patrolled and in the wintertime in the Northern States, snow removal is a heavy burden, in some States amounting to over a million dollars per year. These burdens fall entirely upon the States and local units. The heavy traffic of trucks on interstate business and the millions of automobiles that come into each State from other States all increase the burden of the State in maintaining the highways.

The Federal aid goes to the improvement of only 7 per cent of the roads. The remaining 93 per cent which means over 2,000,000 miles of roads is constructed and maintained without a penny of Federal aid. These roads are used very much more than they were before the automobile came into such general use and the localities are obliged to keep them in much better repair than formerly to avoid accidents by travelers from their own State and other States, which places an additional burden upon the counties and the smaller units under the counties. Take, for example, the county trunk roads many of which are used almost as much as the Federal trunk lines in their locality receive no Federal aid. In Wisconsin in 1927 approximately \$40,000,000 was expended for highway purposes. Of this amount the State paid \$14,711,000, the counties and local units approximately \$24,000,000, while Federal aid only amounted to \$1,870,000. Similar figures could undoubtedly be procured from other States.

When the Federal Government in 1916 appropri-



Project 693, Road No. 4, St Lucie County.

ated money for Federal aid to roads it found over 95 per cent of the roads upon which Federal money applied laid out and many of them graded. The localities have already performed the major part in building these interstate trunk lines, and it is only fair that this fund which is now available from the bonds given by the French Government for the sale of surplus road material and war supplies, and which Congress by legislation appropriated to the Department of Agriculture for roads, be now given to the States for improvement of their roads, and that the States be not required to contribute to exceed 20 per cent of the amount they receive.

The Federal Government has appropriated hundreds of millions of dollars for harbors which have helped the localities where the improvements were made. It has also appropriated hundreds of millions of dollars for the improvement of rivers which has helped certain localities. These internal improvements have, of course, indirectly helped all the localities and all the people. Federal aid for roads is the first internal improvement which has directly helped every locality in the United States. Thousands of localities which have never received a penny from the Federal Government, not even a small post-office building, have contributed their share toward the improvement of rivers and harbors. Is it not fair at this time for the Federal Government to appropriate money for a great internal improvement like the building of highways which all of the people of the United States use and help to wear out, and over which 23,000,000 automobile vehicles travel and the interstate trucks constantly use?

The Government at an early date recognized the benefits of efficient transportation. July 1, 1862, an act was passed by Congress granting the Cen-

tral Pacific and the Union Pacific corporations vast tracts of public land, more than enough for their building the roads.

Later the Northern Pacific by a single act of Congress was granted 47,000,000 acres of land for the building of its road, and the Atlantic & Pacific Railroad was granted 42,000,000 acres.

I am not criticizing these grants of land—both political parties favored it—but I do maintain that there is more justification in the Federal Government appropriating money to build highways over which all the people have an equal right to travel without paying toll or tribute to private corporations.

Our extensive railroad systems helped to build up the localities and greatly hastened the development of the country. With the invention of the locomotive and steamboat the Federal Government directed its attention to assisting the railroads and dredging rivers and harbors to assist navigation. Federal road building ceased. There were no Federal roads constructed or Federal aid to roads given between 1812 and 1916, with the exception of less than \$100,000 in appropriation between 1812 and 1838, a period of over 100 years.

During this 100 years the rural localities have had to shoulder the full burden of building and maintaining millions of miles of road.

The 7 per cent of the roads upon which the Federal Government gives aid aggregates 200,353 miles. In the 10 years of Federal aid with the contributions of States and local units of the State only 69,536 miles have been completed and 141,027 miles of the system remains unimproved. At this rate it will take us over 20 years to complete this system, and in the meantime the increased wear and tear on

auto vehicles because of our incomplete system of highways will go on at the rate of over \$600,000,000 a year.

The phenomenal increase of automobiles in the last 10 years is amazing. In 1917 there were 4,500,000 automobiles. In 1927 over 20,000,000 automobiles. In 1917 we had 326,000 trucks, and in 1927 we had 2,943,898 trucks.

Roads have not kept pace with rolling stock. Our highways are inadequate to meet the demands of traffic. The scientific building of roads should have been continued by the Federal Government from the time when it began building its roads in Washington and Jefferson's administration. It is a belated movement 100 years overdue. Roads must be built faster. The rolling stock, consisting of over 20,000,000 automobiles and 3,000,000 trucks, are almost 100 per cent perfect, while the roads they move over are not 25 per cent perfect.—Nations Traffic.

BOSTON POST ROAD IS NOW 225 YEARS OLD

By E. E. Duffy

America's first lengthy highway, the Boston Post Road, is now 255 years old. The story of this ancient trail, first a post rider's path, now a smooth, rigid roadway, is a history of highway building in itself.

The Boston Post Road has evolved into one of America's truly modern thoroughfares. This route was one of the earliest roadways four traffic lanes wide, and is considered the longest wide highway in the country.

In the early winter of 1673, the first horseback post left New York City for the other principal city of the New World, Boston. This was the earliest attempt to link together these two cities, towns then, by land. The rider left New York with messages from Governor Lovelace to Governor Winthrop of Connecticut and the governor of the Massachusetts Bay Colony. At the end of the second day the message bearer was still in the confines of the present New York City, for the trail was poorly marked.

The first journey required two weeks. Later, when provisions were made for changing horses along the route, the time was reduced to one week, with 30 to 50 miles as the average daily distance.

Frail bridges that trembled under the impact of horses' hoofs were erected to eliminate the countless fords necessitated by the meandering trail. In 1713 the New York Assembly established a right of way four rods wide between New York City and the Connecticut boundary. But it was not until 1772 that the first coach journey was made by Jonathan and Nicholas Brown. Riding on hard backless seats, the travel-worn tourist welcomed the end of the daily 40-mile jaunt lasting from sunup to sundown.

The need for paving was evidenced even in those days, but the early attempts were not so successful. The "turnpiking" process consisted in placing a layer of rock covered with sand over the roadway. This gave an excellent roadway for a time, but soon rain washed away the sand and travel over the exposed rocks was more difficult than ever. Later crushed stone and planking smoothed the way of the coach and four.

Motor traffic, increasing at the rate of ten per cent a year, made it mandatory that the road be widened. Even five years ago from 10,000 to 16,000 vehicles

were using the road daily. For a time consideration was given the practicability of constructing a parallel route, but it was decided that it would be more economical to pave the Boston Post Road to a double width. The roadway, now concrete for the most part, is paved to a width of 36 or 40 feet.—Michigan Roads and Pavements.

WORLD'S FIRST OVERSEAS AUTO FERRY LINKS UNITED STATES AND CUBA

The world's first overseas auto ferry, designed to transport cars of the ever-increasing horde of American tourists bound for Cuba and the new American Monte Carlo in Havana across the 90 miles of ocean between that city and Key West, has been completed and is now in operation, it has been announced by the Peninsula and Occidental Steamship Company. The new ferry service, transporting both cars and passengers at a nominal cost, links up, by a five-hour trip, the 700-mile Cuban Central Highway with the new motor-way over the Florida Keys from Key West to Miami, joining there the Atlantic Coastal motor route to Bangor, Me., to complete the longest model automobile highway in the world.

Completion of the Florida overseas route and the opening of the new American Monte Carlo project of John McEntee Bowman and associates in Havana have stimulated the largest volume of Cuba-bound tourist traffic in the history of Key West. Removal of entrance restrictions on cars brought into the island by American tourists has greatly increased demand for automobile transportation beyond capacity of existing facilities and the new ferry is the first unit in a service which will be materially increased in the near future.

At present the Peninsula and Occidental Steamship Company, which is operating the new line jointly with the Florida East Coast Railway, is also operating a passenger, mail and express service to Havana from Tampa and Key West and the Florida East Coast line has a daily car-ferry service to Cuba.—Michigan Roads and Pavements.

Ivory Economy

Mother (to youthful son)—"Be careful to wash your face and hands thoroughly — I'm expecting your auntie."

The son—"But suppose she doesn't come?"

Ed—...and when I promised to marry her she asked me for something more concrete.

Red—Uhm-m, I wonder what cement.

(Editor's Note: These boys are good mixers.)—Ohio State Sun Dial.

One Per Cent Efficient

"How does your cigaret lighter work?"

"Fine; I can light it with one match now."

"22," Tooted the Locomotive

There was a young lady of Crewe

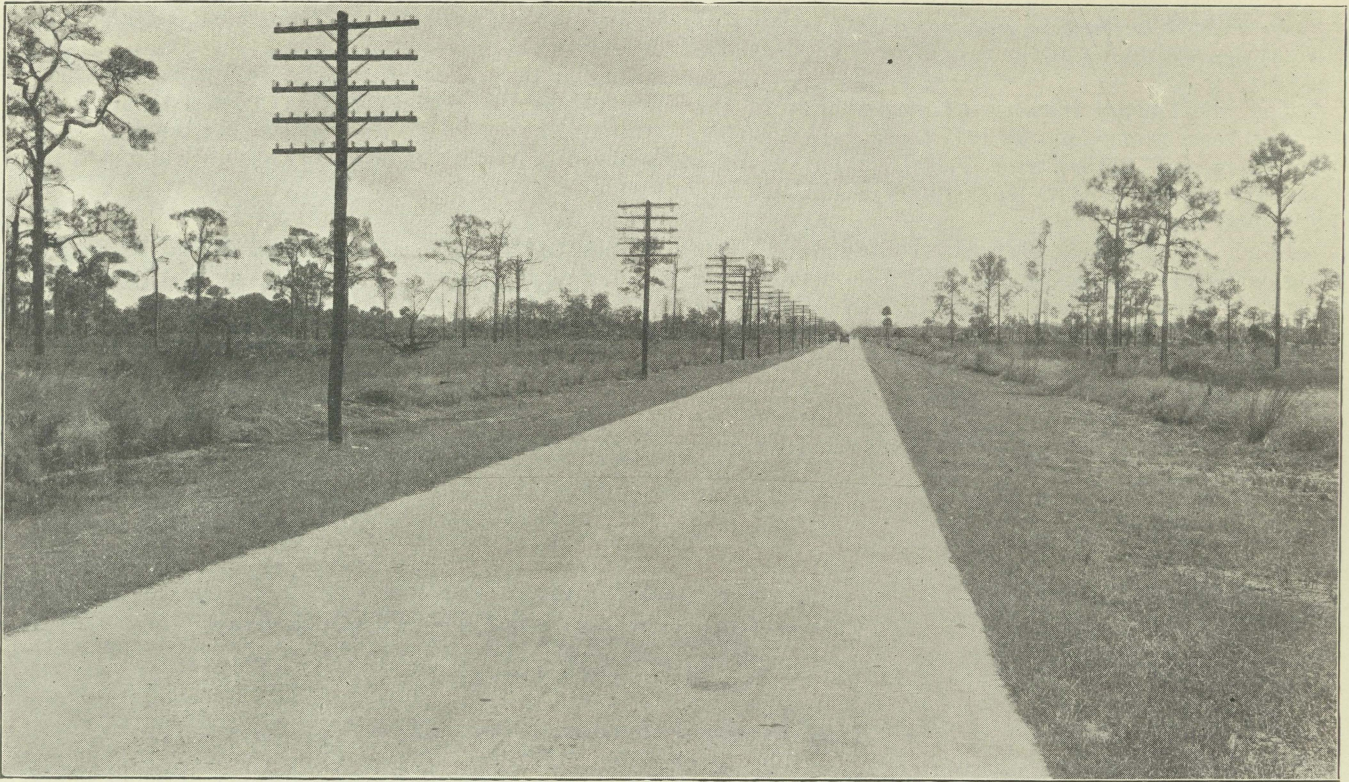
Who wanted to catch the 2.2;

Said a porter, "Don't hurry,

Or worry or flurry,

It's a minute or 2 2 2 2."

—Everybody's Weekly (London).



Project 47, Road No. 4, St Johns County.

"IF YOU ARE WISE"

AT THE intersecting point you face these "driving" facts. If you are wise you will therefore:

- C**onsider the odds against you.
- R**emember your duty to everybody.
- O**bey traffic rules closely.
- S**tudy crossing accidents. See how it might have been you.
- S**acrifice everything to safety.
- C**oncede trains preference always.
- R**eckon with possible machine failure.
- O**perate sanely and fitly only.
- S**top, Look, Listen.
- S**uppress all "chance taking."
- I**nsist on quiet concern from everybody.
- N**ever trust to the engineer.
- G**uard every angle of approach
- S**ecure for emergency. He cannot swerve to avoid you.
- C**onsult records. They show autos constant losers.
- A**pply simple arithmetic—30 miles an hour—45 ft. per second.
- U**se your head.
- T**rain against excitability.
- I**mpress yourself with your responsibility.
- O**mit no details of precaution.
- U**nder-estimate no "remote possibilities."
- S**atisfy yourself thoroughly.
- L**et nothing divert your attention.
- Y**ield to no unsafe counsel.

—Badger Highways.

FORTY-FOUR MILLION PEOPLE WILL TAKE VACATION MOTOR TOURS THIS YEAR

More than forty-four million people, over a third of the nation, will take vacation motor tours during 1928 and will spend the staggering sum of three and a half billion dollars, according to preliminary estimates of this year's motor tourist business made by the National Touring Bureau of the American Automobile Association.

The estimate for 1928 is based on a detailed study of figures for the 1927 season, with an allowance of ten per cent increase for this year, which is about the normal annual growth in the gigantic industry of motor touring over the past few years.

Approximately forty million people, in ten million cars, took to the winding ribbons of paved highways and into the byways for their vacations last year.—New Mexico Highway Journal.

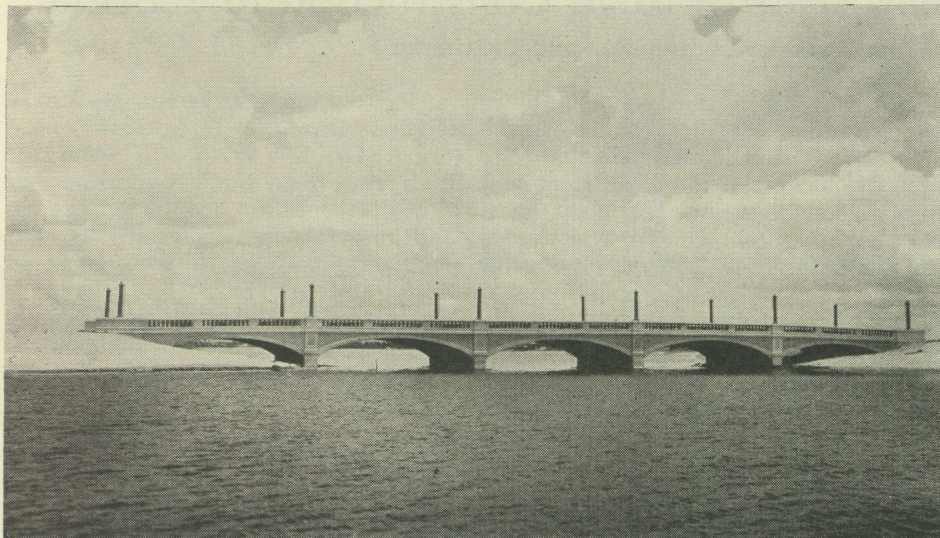
BILL PROVIDES FOR SUPER-HIGHWAY

The Construction of an elaborate system of super-highways, greatly enlarging the Federal aid highway programs, which provides for 182,000 miles of Federal aid road, has been asked in a bill introduced in Congress by Senator George H. Moses of New Hampshire. The measure provides for a highway as direct as practicable between the Atlantic and Pacific Coasts and for cross highways, which would connect the entire United States.

Knows His Toots

"Are you a clock watcher?" asked the employer of the candidate for a job.

"No, I don't like inside work," replied the applicant, without heat, "I'm a whistle listener."—Dallas Hurry Back News.



LAKE JACKSON BRIDGE AT SEBRING, FLORIDA

HERNANDO COUNTY ROCK

From Camp and Con-
rock Quarries

Used exclusively as aggregate
in this Bridge

Stone from our quarries has been used in many other bridges and structures in Florida, also in concrete pavements built by State Road Department and other agencies. Stone from our quarries was used in Clearwater Causeway and Bridges, which were recently opened for traffic.

Florida Crushed Stone Co.

Sales Offices:
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Atlanta, Ga., Branch Office, 1320 Hurt Building.
H. N. HUTCHINSON, Manager.

Approximately \$40,000,000 will become available in Ohio for road construction and maintenance during the next year and a half. This will be applied to a State-wide program which includes many miles of reconditioning, rebuilding, relocating, widening, and otherwise grooming Ohio's roads for an estimated 1935 traffic of 2,600,000 vehicles serving 7,000,000 people.

DON'T BE A POOR FISH.

A story is going the rounds of a man who had a fish-tank divided into two sections by a glass partition. In one side he put a lively bass; in the other a number of minnows.

Every time a minnow came up to the glass partition the bass made a strike. Then, with a bruised head, the bass got discouraged and waited patiently each day for the food dropped in from above.

The man took out the partition. The minnows swam around the bass and were not touched. The bass was thoroughly sold on the idea that business was bad.

Take another lunge at the glass partition. It isn't there.—The Churchman.

Wm. P. McDONALD CONSTRUCTION CO.

ASPHALT PAVING CONTRACTORS

MAIN OFFICE

67 Lawrence Avenue

FLUSHING, N. Y.

BRANCH OFFICE

Rooms 907-917 Marble Arcade Bldg.

LAKE LAND, FLORIDA

Law-Abiding Citizen

Not long ago Deacon Miller bought a horse and buggy and took his wife out one Sunday for a drive. They came to our neighboring town of Osseo and saw a sign which read, "Speed limit, fifteen miles per hour."

"Here, ma," said the deacon excitedly, "you take the lines and drive, and I'll use the whip. Maybe we can make it."—Life.

Two and One-half Years of Road Construction in Florida

(From The Florida Engineer and Contractor.)

THE period covered by this article extends for the two and one-half years beginning July 31, 1925, until the present. While it is coincident with the term of F. A. Hathaway as Chairman of the Department, it is not solely on this account that these particular two and one-half years have been chosen. On the contrary, it is deemed the logical basis for discussion because, as will be seen, both in the matter of road paving and bridge construction these two years are equal to all that had been accomplished prior to that time.

Today the mileage of State-built paved roads in Florida is 1332.79, which is divided as follows: Concrete, 243.19; brick, 17.13; bituminous concrete, 36.51; sheet asphalt, 92.02; bituminous macadam, 101.75; asphalt block, 23.20; surface treated rock base, 818.99. The records show that on July 31, 1925, the mileage of State-paved roads was 610.90, apportioned as follows: Concrete, 123.72; brick, 12.44; bituminous concrete, 10.63; sheet asphalt, 50.75; bituminous macadam, 71.50; asphalt block, 23.20; surface-treated rock base, 318.66. It is apparent therefore that in the last two and a half years the mileage of paved roads has been more than doubled over that constructed from the beginning of the State Road Department to July 31, 1925; and, it might be remarked in this connection that the mileage given above as present mileage is in reality mileage as of November 30, 1927, so that the figures do not do full justice to the situation.

It is now generally known that the State Road system of Florida has been by the Legislature so designated as to make a distinction between what are known for convenience sake, as primary or preferential roads, second preferential and designated. The primary system comprises State Roads Nos. 1, 2, 3, 4, 5, 8, 19, and those other portions of State roads which have been designated by the Federal Government as part of the Federal 7% system. The latter are as follows: State Road No. 6, from Alabama line to Marianna; all of Road No. 7; State Road No. 10, from Tallahassee to the Georgia line; Road 13, from Baldwin to Gainesville via Starke; Road 14, from Gainesville to Hastings, via Palatka; Road 16, from Ocala to Road 5; Road 17, from Haines City to Tampa; Road 21, from Daytona to DeLand; Road 24, from Kissimmee to Melbourne; Road 27, from Fort Myers to Miami (a link in the Tamiami Trail).

The State Road Department is directed in its operations to give primary attention to the roads listed above and thereafter, when labor and equipment may be transferred from that system without delaying construction of the same, it is required to commence the building of Roads 5-A, 10, 15, 20, 28, that part of Road 11 from the Georgia line to Monticello, and Road 47.

Road No. 5-A is the extension from High Springs to Perry via Fort White, Branford and Mayo. Road 10 extends from Georgia State line by way of Tallahassee to Milton and thence to Pensacola, traveling from St. Marks westward a line along the Gulf coast. Road No. 15 is also a link in the Gulf Coast Highway and extends between Road 10 at Newport, Wakulla County, to St. Petersburg. Road No. 20 is the road which extends from Road No. 1 at Cottondale to Panama City. Road No. 28 extends from Lake City to

Bunnell by way of Palatka, Lulu, Lake Butler, Starke and Keystone Heights. Road No. 11 extends from a point on the Georgia State line south of Thomasville via Monticello to Capps. Road No. 47 commences at a point on Road No. 4 south to Goodby's Lake, in Duval County, and runs thence southwardly as near as practicable along the St. Johns River to Road 14 and thence to East Palatka. This is in accordance with the legislative direction under which the State Road Department works and in the carrying out of which its chief effort has been directed during the past two and one-half years.

It is doubtful if a better idea of the progress which has been made can be given than to point out some of the important gaps which have been closed in the State road system during that time. For example: all gaps in State Road No. 13 have been closed; the whole of State Road No. 1 between Lake City and Tallahassee has been paved with the exception of that short stretch between the Aucilla River and Greenville, which is now ready for paving, the new grade having been recently finished. During the same period of time the Payne's Prairie bridge and fill on Road No. 2 south of Gainesville have been completed, the result of which is a net saving of five miles as well as the construction of a high type road over the distance.

State Road No. 5, from High Springs to Brooksville has been entirely paved as have also the stretches of the same road between Sarasota and Venice and between Punta Gorda and Acline. On Road No. 4, or the East Coast Highway, the stretch between Vero and West Palm Beach, and from the Duval County line to Bunnell have been paved. It is probably in order to point out, although it has many times been stated, that it is possible to ride on a paved road down the East Coast from the Georgia State line to Miami.

State Road No. 3 has been paved from Duval County line to the Georgia line. While on the same road a high type pavement is completed between Sanford and Maitland. The bridges over Doctor's Inlet and Black Creek are also finished, so that the trip from the Georgia line to Orlando over this road has now become a most comfortable one.

On Road No. 8 paving has been completed between Lake Annie and Arcadia and on Road No. 2 the gap in the paving between Lake City and the Georgia line has been completed and is open to traffic. Other gaps in paving which have been completed during this time are Road No. 2 from Zolfo to Brownsville; Road No. 24 from the Osceola County line to Melbourne; Road No. 19 from Chiefland to Williston; Road No. 6 from Marianna to the Alabama State line; the last gap of Road 7 at Pine Barren; Road No. 14, from Alachua County line to Palatka. In addition all the gaps on State Road No. 1 between Tallahassee and Pensacola have been closed and all but an inconsiderable distance in this stretch is now paved.

One of the most interesting of all the accomplishments of the Department during the past two and one-half years is the construction of the Tamiami Trail, or Road No. 27. Nothing which the Department has ever undertaken has presented such difficulties in the way of construction details as has this road. In

(Turn to page twenty)

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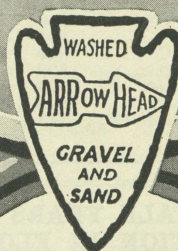
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F. A. P. 101: 11
miles Arrowhead
Concrete between
Greenville and Ft.
Deposit, Ala.



Again high test aggregates produce high test concrete

F. A. P. 101—11 miles of concrete paving between Greenville and Ft. Deposit—offers further proof of the fact that it takes high test aggregates to consistently produce high test concrete.

This 18-ft. highway (laid by Joe F. Walters Paving Co., of Troy, Ala.) is another

Arrowhead SAND AND GRAVEL

concrete job that tests well beyond the standard—3,000 lbs. per sq. inch—highway specifications.

This is the second important link, completed this year, in Alabama's program of concrete highways in which Arrowhead aggregates have produced as high as 25% stronger concrete than was called for under the standard highway specifications.

**MONTGOMERY
GRAVEL CO.**

Shepherd Building
MONTGOMERY, ALA

Contracts Awarded by State Road Department January 1st, 1928, to April 16th, 1928

Contractor—	Project No.	County—	Length Miles	Length Feet	Contract + 10 %	Type
Sutton Bros.	55-B	Alachua .....	.....	457	\$ 54,272.17	Concrete
General Const. Co.	677-D	Levy .....	.....	1,335	43,000.98	Timber
Frost Const. Co.	710-B	Hillsboro .....	.....	260	54,775.16	Concrete
Sutton Bros.	764-B	Suwannee .....	.....	113	19,043.82	Conc. Overh'd.
Duval Engr. & Contr. Co.	677-D	Levy	8.91	.....	110,370.35	R. B. S. T.
E. F. Powers Const. Co.	710-C	Hillsboro	12.69	.....	95,125.45	C. G. & G.
B. Booth	755	Polk	11.22	.....	58,518.86	C. G. & G.
Little & Lee	757	Polk	10.26	.....	63,516.17	C. G. & G.
Little & Lee	758	Polk	8.34	.....	46,380.34	C. G. & G.
Gilbert & Hadsock	732	Polk	8.94	.....	57,077.26	C. G. & G.
C. G. Kershaw Contr. Co.	736	Holmes	8.58	.....	45,097.93	C. G. & G.
C. G. Kershaw Contr. Co.	709	Holmes	9.09	.....	53,931.71	C. G. & G.
Morgan-Hill Paving Co.	61-C	Gadsden	9.77	.....	244,581.31	Concrete
Franklin Const. Co.	710-A	Hillsboro	6.18	.....	38,592.08	C. G. & G.
E. M. Chadbourne	697	Escambia .....	.14	666	3,401.25	Surface
Robert G. Lassiter & Co.	683-A	Palm Beach	8.04	.....	264,999.43	Concrete
Rutherford Const. Co.	695	Lake	3.00	.....	46,992.07	R. B. S. T.
S. G. Collins	827	Escambia	8.12	.....	50,151.29	C. G. & G.
M. C. Winterburn, Inc.	61-A	Gadsden	10.00	.....	231,578.27	Concrete
Phoenix Asphalt Paving Co.	669-X	Collier	9.40	.....	28,814.77	Surface T'd.
Everglades Const. Co.	62-C	Osceola	11.83	.....	115,303.71	C. G. & G.
A. D. Weeks	62-A	Osceola	12.62	.....	83,299.72	C. G. & G.
A. D. Weeks	62-D	Osceola	12.52	.....	66,571.01	C. G. & G.
R. C. Huffman Const. Co.	807-A	Palm Beach	10.81	.....	201,713.22	R. B. S. T.
R. C. Huffman Const. Co.	807-C	Palm Beach	6.14	.....	99,923.54	R. B. S. T.
C. A. Steed & Son, Inc.	804	Glades	18.55	.....	416,083.52	R. B. S. T.
Duval Engr. & Contr. Co.	659	Clay	7.25	.....	95,449.25	R. B. S. T.
Silas Gibson	815	Okaloosa	13.58	.....	60,680.23	C. G. & G.
W. J. Bryson Paving Co.	819	Okaloosa	4.69	.....	20,979.67	C. G. & G.
W. J. Bryson Paving Co.	823	Okaloosa	9.18	.....	34,085.34	C. G. & G.
W. J. Bryson Paving Co.	824	Okaloosa	9.81	.....	59,898.02	C. G. & G.
Perkins Const. Co.	820-B	Jefferson .....	.....	114	4,881.25	Timber
Maddox Foundry & Mach Co.	743	Bay .....	.....	120	13,774.47	Timber
Total			249.66	3,065	\$2,882,863.62	

TWO AND ONE-HALF YEARS OF ROAD CONSTRUCTION IN FLORIDA

(Continued from page eighteen)

fact, there were a great many people who openly predicted that it would never be built. However, it is now so near full completion that announcement has been made that it will be open to traffic, with appropriate ceremony, on the 25th of April. Those familiar with the location of this great cross-state highway know that it extends over the marshy lands of the Everglades, and for a part of the distance the roadbed had to be blasted out of the underlying rock and placed on the fill. Its completion is practical evidence of the determination of the State Road Department to accomplish what it undertakes.

During the two years and a half which we are considering there have been constructed 32,907 feet of bridges as against 44,798 for the whole existence of the State Road Department prior to that time. It is also interesting to observe that there are at present 205 miles of grading which have been completed and are ready for pavement, and that there are 413.63 miles of grading under construction, of which approximately 283.36 miles are completed.

ROADS PAVED WITH JEWELS

Europeans recently made a remarkable purchase. For the equivalent of sixteen pounds of English money, or about eighty American dollars, they purchased a road in the Russian town of Swerdlovsk. Then they dug up the road, put the material into trucks, and when it was properly broken up and assorted, the material was appraised and found to be worth nearly half a million pounds sterling.

A gem expert had noticed that huge blocks of jasper had been buried in the ground, while lovely green malachite had been cracked for road metal.

Topaz, even jade, had been crushed to build the road.

While this was the biggest blunder of its sort ever made, it was not the first. The costliest macadam on record was that used at Kimberly, South Africa, when the streets of that city were first paved. It was blue clay holding diamonds, and when the mistake was realized and the road material was carefully scraped and washed, more than five million dollars worth of diamonds, some bigger than hazel nuts, were found.

One of the most costly materials ever used for road-building is camphor wood from the East Indies. Twenty-four years ago a part of Buckingham Palace road in England was paved with this rare and beautiful wool. Another costly paving experiment was made in the French city of Lyons, when about an eighth of a mile of street was laid with blocks of glass. Boxwood, which is so expensive that it costs several dollars for the material to make a small ornamental box, was tried in Piccadilly for a road, but the eccentric road-builder gave up the plan when he discovered that it would cost him almost twenty thousand pounds sterling to complete the road.

To Be Well Shaken

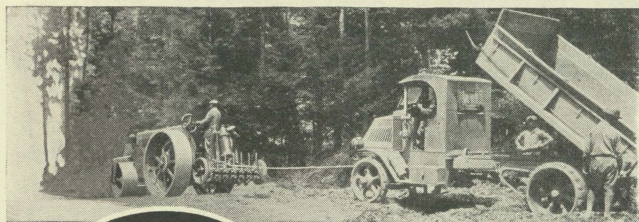
A prominent city man who is as mean as he is wealthy, relates an English paper, is fond of getting advice for nothing. Meeting his doctor one day, he said to him, "I'm on my way home, doctor, and I feel very seedy and wornout generally. What ought I to take?"

"A taxi," was the curt reply.—Boston Transcript.

Much of A Muchness

"I have always maintained," declared Charles, "that no two people on earth think alike."

"You'll change your mind," said his fiancée, "when you look over our wedding presents."—Life.



Is it because of BUFFALO-SPRINGFIELD'S reputation for superior performance? Or because there is a BUFFALO-SPRINGFIELD for every special or general requirement? Or because of the prestige, good-will and confidence built up during a third of a Century of outstanding service? Whatever the reason—that they are preferred the country over is an established fact.

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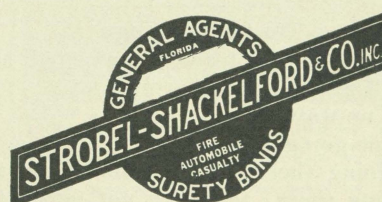
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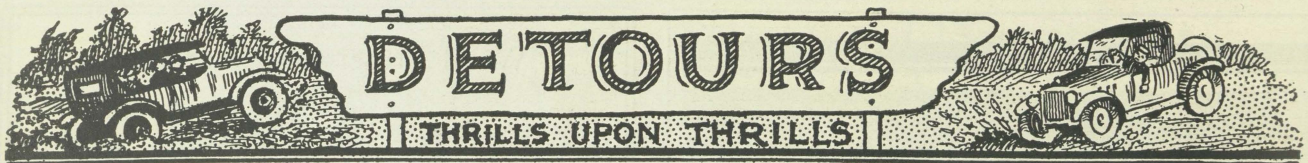
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insist that we write it and you will be
well and promptly served.



Eternal Flapper

The Seven Ages of Women.
The infant.
The little girl.
The miss.
The young woman.
The young woman.
The young woman.
The young woman.

—Louisville Times.

Time to Explode

"What are you children doing? I thought you were playing together."

"We are playing at fathers and mothers."

"But you don't need to make all that noise."

"Yes, we do—she has just asked me for money for a new hat."—Passing Show.

Cutting Out the Prattle

"If no one talked of what he does not understand," said Hi Ho, the sage of Chinatown, "the silence would become unbearable."—Washington Star.

How to Tickle Your Wife

"So you have forgotten our wedding anniversary," she said bitterly.

"How could I remember it?" he inquired. "Time has slipped away so fast and so happily that the wedding seems but yesterday."—Washington Star.

The Woman Who Did

A complicated traffic tangle was caused recently by a lady motorist who signaled that she was about to turn to the right and did so.—London Opinion.

On to the Lingo

A mountain school teacher corrected a boy who had said, "I ain't gwine thar."

"That's no way to talk. Listen:

"I am not going there; thou art not going there; he is not going there; we are not going there; you are not going there; they are not going there. Do you get the idea?"

"Yessur. They ain't nobody gwine!"—Hardware Age.

Watch Your Step

He—"You must economize! Think of the future. If I were to die, where would you be?"

She—"I should be here all right. The question is—where would you be?"—Weekly Telegraph (Sheffield).

Two of a Kind

Shem—"We have a pair of everything on board, haven't we?"

Noah—"Yes, we have."

Shem—"Well, I hope you're right. I can't find my swimming-pants anywhere."—John Bull's Summer Annual.

Industrial Boom

A wealthy auto tourist lost his pedigreed dog while stopping in a small town. He inserted a lost ad in the newspaper, offering a reward of \$100.

The next day he went to the office to inquire, but no one was to be found except a decrepit janitor.

"Where in thunder is the newspaper force?" asked the tourist impatiently.

"They're all out," the old man replied, "tryin' ter find yer dog."—Judge.

Johnny on the Spot

Minister—"Who giveth this woman?"

Bride's Father—"I do. And now, folks, I wish to remind you that to-day's program is coming to you through the courtesy of Walter Q. Blubblah, father of the lovely bride and president of the Blubblah Bushing and Winch Corporation, manufacturers of the 'Little Wonder Winches' and 'Milady Dainty Bushings,' at all hardware shops of the better sort."—Life.

See America First

"How was the scenery on your trip?"

"It ran largely to tooth paste and smoking tobacco."—Louisville Courier.

'Tis the Voice of the Schoolboy

These examples of "howlers" may be added to the collection already published:

"All the world except the United States lies in the 'temperance zone.'"

"The sun never sets on the British Empire because the empire is in the east and the sun sets in the west."

"Finally James II gave birth to a son, so the people turned him off the throne."

"The Minister of War is the clergyman who preaches to soldiers."

"Queen Elizabeth rode through Coventry with nothing on and Sir Walter Raleigh offered her his cloak."

"Henry VIII was very cruel to Anne Boleyn and ironed her." (The history had said, "He prest his suit on her.")

"Shakespeare lived at Windsor with his merry wives."

"The king wore a scarlet robe trimmed with vermin."

"Wolsey saved his life by dying on the way from York to London."

"After twice committing suicide, Cowper lived till 1800, when he died a natural death."

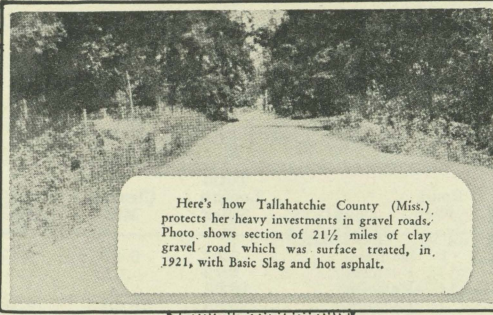
"The immortal William is a name applied to the former German Emperor."

"Barbarians are things put into bicycle wheels to make them run smoothly."

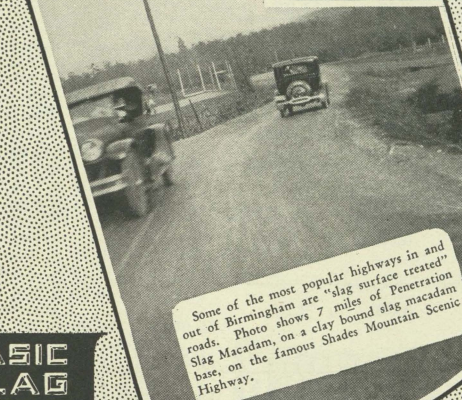
"A Soviet is a cloth used by waiters in hotels." (A serviette.)

"Polonius was a mythical sausage."

"The masculine of vixen is vicar."—Living Church.



Here's how Tallahatchie County (Miss.) protects her heavy investments in gravel roads. Photo shows section of 2 1/2 miles of clay gravel road which was surface treated, in 1921, with Basic Slag and hot asphalt.



Some of the most popular highways in and out of Birmingham are "slag surface treated" roads. Photo shows 7 miles of Penetration Slag Macadam, on a clay bound slag macadam base, on the famous Shades Mountain Scenic Highway.



County Road No. 5 (Marion County, Fla.) on short route Jacksonville-Tampa Highway: 18 miles of double surface treatment paving: "Ensley Basic Slag" wearing surface on an 8-inch compacted Ocala Lime Rock (Florida's natural road base material) foundation.

**BASIC
SLAG**



*For better
Roads*

Second thought on Secondary Highways

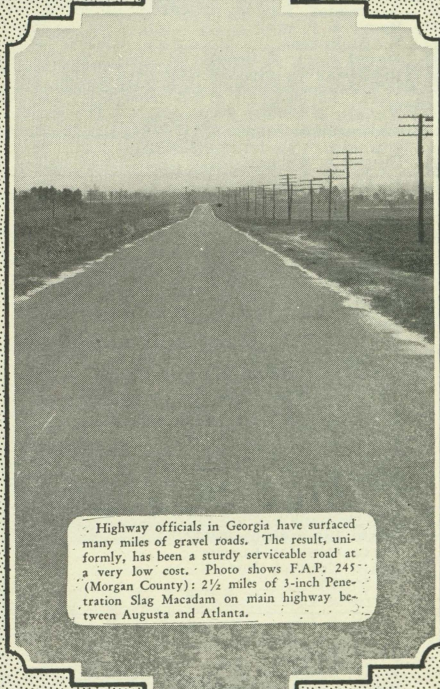
THOSE unpaved county and secondary highways! No problem before you is more important than to make them "all weather" highways (serviceable the year round).

You can—and at the same time effect a big saving in those heavy maintenance costs—by waterproofing the old gravel and macadam roads with a bituminous

**"ENSLEY" & "ALA CITY"
BASIC SLAG
CRUSHED & SCREENED**

wearing surface. This can be done at a cost, in the long run far **LESS** than the cost involved in continually scraping, grading and renewing the old road.

The four highways shown on this page are typical of this "second thought" on secondary highways. Results, uniformly, have been (1) a serviceable, all weather highway at very low cost, (2) a big annual saving in maintenance. Let us give you careful figures about the cost and the—saving!



Highway officials in Georgia have surfaced many miles of gravel roads. The result, uniformly, has been a sturdy serviceable road at a very low cost. Photo shows F.A.P. 245 (Morgan County): 2 1/2 miles of 3-inch Penetration Slag Macadam on main highway between Augusta and Atlanta.

BIRMINGHAM SLAG CO.

Slag Headquarters for the South
ATLANTA BIRMINGHAM JACKSONVILLE
THOMASVILLE MONTGOMERY Ocala FLA

Status of Construction

THROUGH FEBRUARY 29, 1928.

Proj. No.	Contractor.	Road No.	County	Total Length Miles	Clearing Miles	Grading Miles	Base Miles	Surface Miles	Per Cent Complete
6	Higgison Construction Co.	1	Madison	5.47	5.47	5.47		Graded	100.00
50-A	L. M. Gray	14	Putnam	6.19			6.19	3.71 S.T.R.B.	95.00
50-C	N. C. Cash	14	Putnam	10.03				10.03 S.T.R.B.	99.00
52	W. J. Bryson Paving Co.	1	Escambia	10.09	10.09	9.18		Graded	93.70
55	W. J. Bryson Paving Co.	14	Alachua	16.77	16.77	15.93		Graded	96.00
61-A	M. C. Winterburn, Inc.	1	Gadsden	10.00				0.00 Concrete	0.00
61-C	Morgan-Hill Paving Co.	1	Gadsden	9.77				0.00 Concrete	0.00
62-A	A. D. Weeks	24	Osceola	12.52	1.50	1.50	.25	Graded	3.00
62-C	Everglades Const. Co.	24	Osceola	11.83	0.00	0.00		Graded	0.00
62-D	A. D. Weeks	24	Osceola	12.62	2.01	0.00		Graded	2.00
518	Barnes Construction Co.	5-A	Lafayette	17.75	16.86	11.71		Graded	60.00
535	L. B. McLeod Construction Co.	5-A	Lafayette	13.20	12.54	6.73		Graded	47.00
543	M. C. Winterburn, Inc.	3	Seminole	14.20			14.20	Bit.Mac.	100.00
585	State Convict Forces	1	Santa Rosa	5.19	3.25	3.00		2.50 S.T.S.C.	35.00
592	State Convict Forces	10	Franklin	8.53			3.39	0.00 S.T.R.B.	29.00
614	West Construction Co.	5	Sarasota	17.34			17.34	Bit.Mac.	100.00
615	E. F. Powers Construction Co.	5	Sarasota	11.92	11.68	9.29		Graded	69.00
624	L. B. McLeod Construction Co.	50	Hamilton	6.23	5.92	3.92		Graded	64.14
640-A	West Construction Co.	4	Martin	9.00			1.53	0.00 S. Asph.	8.90
640-B	West Construction Co.	4	Martin	11.80			7.08	1.18 S. Asph.	34.80
644-A	State Convict Forces	10	Wakulla	8.50			0.00	0.00 S.T.R.B.	0.00
644-C	State Convict Forces	10	Wakulla	5.06	3.09	2.28		Graded	39.60
645	State Convict Forces	10	Wakulla	18.50			15.00	12.00 S.T.R.B.	85.00
646	State Convict Forces	10	Franklin	18.00				18.00 S.T.R.B.	100.00
651	State Convict Forces	10	Gulf	14.72			12.50	0.00 S.T.R.B.	78.80
654	S. P. Snyder & Son	4	Broward	6.30	6.10	4.78	5.40	0.00 Bit.Mac.	48.00
669-C	R. C. Huffman Construction Co.	27	Dade	12.00	12.00	12.00	12.00	0.00 S.T.R.B.	98.00
669-D	R. C. Huffman Construction Co.	27	Dade	12.31	12.31	10.46	10.46	0.00 S.T.R.B.	85.00
669-V	Wolfe & Alexander R. & K.	27	Collier	19.72	14.50	14.50	14.50	0.00 S.T.R.B.	75.00
669-XZ	H. E. Wolfe Construction Co.	27	Collier	15.88			10.80	.32 S.T.R.B.	69.83
669-Z	Alexander, Ramsey & Kerr	27	Collier	6.48	6.48	6.00		Graded	90.00
677-C	Boone & Wester	13	Levy	10.16	10.16	9.95		Graded	98.00
677-D	N. B. Burton	13	Levy	3.05	3.05	2.84		Graded	85.00
677-D	Duval Engr. & Contr. Co.	13	Levy	8.91			4.45	0.00 S.T.R.B.	40.00
683-A	Robert G. Lassiter & Co.	4	Palm Beach	9.04	0.00			0.00 Concrete	0.00
685	Deen, Yarborough & Ebersbach	10	Franklin	18.46	18.46	17.54		Graded	98.00
695	Vadner & Tampa Sand & S. Co.	2	Lake	10.54	10.54	10.33		Graded	99.50
695	Rutherford Const. Co.	2	Lake	3.00			1.02	0.00 S.T.R.B.	35.30
706-A	Franklin Construction Co.	28	Putnam	11.85	11.85	11.85		Graded	100.00
706-B	Curry & Turner	28	Putnam	14.91	14.16	8.05		Graded	62.00
708	Hardee-Fisher Co., Inc.	11	Jefferson	7.98	7.98	5.59		Graded	72.00
709	C. G. Kershaw Contr. Co.	39	Holmes	9.09	1.36	.45		Graded	5.00
710-A	Franklin Const. Co.	17	Hillsboro	6.18	2.72	1.54		Graded	23.37
710-C	E. F. Powers Const. Co.	17	Hillsboro	12.69	3.42	.63		Graded	7.00
714	W. J. Bryson Paving Co.	28	Union	10.20	10.11	9.29		Graded	95.10
715	Sellers Construction Co.	28	Union	3.70	3.62	2.55		Graded	80.40
716	Columbia Contr. Co.	28	Bradford	11.21	10.76	9.53		Graded	91.20
717	Southern Surety Co.	28	Bradford	11.02	11.02	9.37		Graded	91.30
720	Hardee-Fisher Co., Inc.	11	Jefferson	9.64	7.71	3.37		Graded	43.00
722	R. J. Carroll	48	Jefferson	8.83	7.00	3.00		Graded	25.00
723	L. B. McLeod Construction Co.	66	Leon	11.76	10.00	6.47		Graded	56.00
726	State Convict Forces	19	Dixie	12.57	4.00	1.20		Graded	15.00
728	State Convict Forces	10	Leon	11.65	10.48	8.62		Graded	70.80
732	Gilbert & Hadsock	17	Polk	8.94	1.43	0.00		Graded	3.50
736	C. G. Kershaw Contr. Co.	39	Holmes	8.58	1.63	.51		Graded	5.00
740	State Convict Forces	10	Gulf	9.63	9.63	9.63		Graded	92.00
742	Little & Lee	13	Alachua	7.65	7.65	6.88		Graded	90.00
743	State Convict Forces	10	Bay	18.25	17.52	16.97		Graded	78.00
744	State Convict Forces	19	Madison	5.79	3.50	2.25		Graded	33.00
745	Convicts and Taylor County	19	Taylor	15.95	9.72	7.18		Graded	36.50
748	State Convict Forces	35	Madison	6.22	6.00	3.25		Graded	56.00
749	State Convict Forces	14	Gilchrist	6.75	2.50	.75		Graded	10.00
750	State Convict Forces	14	Gilchrist	12.97	0.00	0.00		Graded	0.00
755	B. Booth	17	Polk	11.22	2.02	.45		Graded	7.52
757	Little & Lee	2	Polk	10.26	5.02	.61		Graded	9.03
758	Little & Lee	2	Polk	8.34	3.00	2.50		Graded	30.30
763	A. E. Campbell	50	Suwannee	12.23	9.99	9.87		Graded	81.70
764	F. W. Simpson	50	Suwannee	12.00	12.00	11.40		Graded	92.13
765	F. W. Simpson	50	Suwannee	7.00	6.99	6.78		Graded	93.52
786	State Convict Forces	52	Jackson	6.76	6.76	6.76		Graded	96.56
827	S. G. Collins		Escambia	8.12	0.00	0.00		Graded	0.00
Total Complete February 29, 1928					2467.26	2388.20	1169.23	1815.74	
Complete Month of February					37.02	43.23	21.36	8.28	
Total Complete January 31, 1928					2430.24	2344.97	1147.87	1807.46	

TOTAL MILEAGE COMPLETE

	Concrete	Brick	B. C.	S. A.	B. M.	Asph. Block	S.T.R.B.	S.T.S.C.	S. C.	Marl	Total
Complete to January 31, 1928	243.97	17.13	36.28	95.00	105.12	23.20	878.89	167.46	257.04	27.58	1851.67
Complete month of February	0.00	0.00	.18	2.02	.94	0.00	15.54	1.78	0.00	0.00	20.46
Complete to February 29, 1928	243.97	17.13	36.46	97.02	106.06	23.20	894.43	169.24	257.04	27.58	1872.13

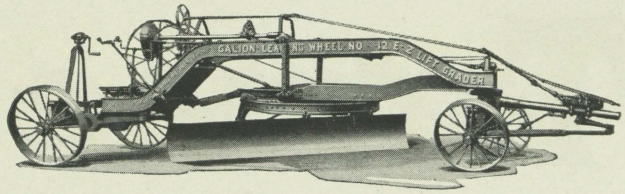
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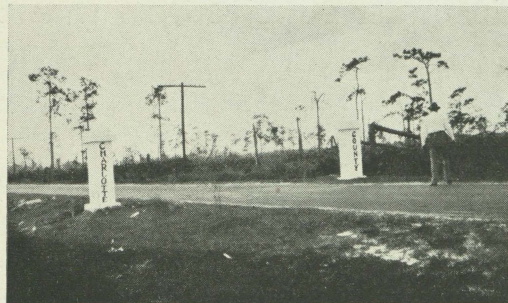
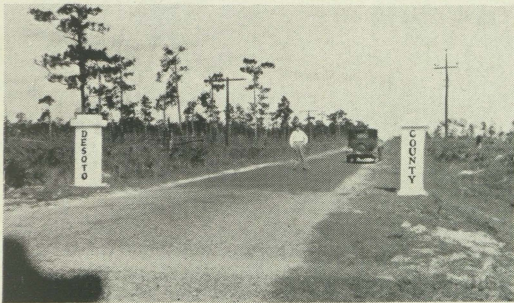
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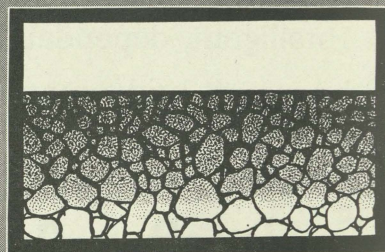


Tarmac Penetrates

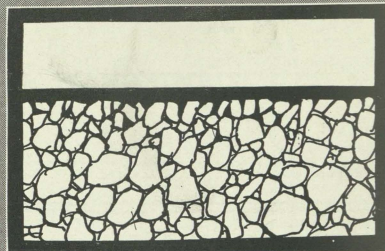
It becomes an integral part of the ROAD

**To give
STABILITY
a surface-treating
material should do
more than *just*
SURFACE-TREAT**

It should
penetrate
like this



Not
lie on the
surface like
a mat



TO get the best results—the results you expect—a surface-treating material must penetrate so that the entire bituminous surface is an integral part of the road. *Tarmac does this.*

A surface-treating material that does not do this will form a mat on the surface that will shove and wave.

Besides providing smooth driving, Tarmac surfaces are *safe*. They are skidproof, whether wet or dry.

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ROADS
GRIP!**

**STAY
SMOOTH**

**NEVER
WAVE**

**NEVER
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